THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · THE RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · THE RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY
AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"
Telephone No.: WHITEHALL 9233 (8 lines)

Annual subscription payable in advance and postage free
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 80 No. 18 FRIDAY, MAY 5, 1944

CONTENTS

DIESEL RAILWAY TRACTION SUPPLEMENT

The May issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is ready on May 1, price 1s.*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Private Railways in Argentina

IN a document which the local boards of the private railways in Argentina have sent to the President of the Republic, and of which we give a cabled summary on page 465, some pertinent comparisons are made as to the conditions which prevail on the State railways, as compared with the private undertakings. The document was lodged in reply to a claim for wage increases. In answer to a point made by the workmen's representatives that the State railways show an annual surplus of 20,000,000 pesos in gross receipts over working expenses, the companies point out that if the State railways had to meet the service of the loans raised by the Government for construction, equipment, and renewals, they would show a deficit. Private railway companies, on the other hand, have to meet the cost of renewals and debenture interest from surpluses which are insufficient for the purpose. The companies' document also shows that workers on the railways are comparatively well-paid in comparison with the average rates of industrial workers, and gives an analysis of the manner in which working results have been affected by rising costs. Between 1938-39 and 1942-43 gross receipts have risen by 15·7 per cent. and direct working expenses, including renewals, by 17·4 per cent. Fuel costs alone have risen by 100 per cent. The peso deficit for 1942-43 was 49,500,000 pesos.

■■■■

Argentine Railways' Exchange Rate

The position of the Argentine railway companies in relation to its sterling remittances has not been improved by the latest rate of exchange which has been granted the railways by the Government. The Central Argentine Railway Company has announced that the Argentine Government has replaced the special rate for remittances for financial services of 16 pesos to the £, which lapsed on December 31 last, by a new rate of 16·15 pesos. The Argentine official buying rate of exchange is 13·50 pesos to the £, and the disability which the railways suffer in exchange for remittances has been a matter of frequent representation by them to the Argentine Administration. For some time the railways rate for financial remittances has been granted by the State on a twelve-monthly basis only, and there is no indication at present as to the reasons which have induced it to stipulate a somewhat worse rate for the railways. Presumably, the rate of 16·15 pesos is intended to be operative until the end of the present calendar year. That will not be at all helpful to the railway companies, whose position, despite the recent improvements in traffic, is still very grave.

■■■■

The Presidency of the Signals

The outbreak of war occasioned greater difficulty for the Institution of Railway Signal Engineers than for some others and interfered considerably with its ordinary activities. For some time only an occasional meeting could be held. Mr. James Boot, elected to the Presidency early in 1939, was generous enough to remain in office for five sessions, repeating what occurred during the 1914 war, with the great difference that he was a very busy man and the then occupier of the chair, the late Mr. Arthur Hurst, had retired from his everyday duties. Mr. Boot has given constant thought to the interests of the Institution, for the better furtherance of which when peace returns a development committee was appointed some time ago, to whose deliberations Mr. Boot has been called on to give a large amount of time. Yielding to his wish, members recently have elected Mr. R. F. Morkill as his successor in office. Fortunately all can now feel that brighter days are not too far away and the new President, in his inaugural address, spoke encouragingly on the prospect. He, too, has taken a great part in the committee work and which will, we trust, be the herald of a wider field of usefulness for the Institution. It has already accomplished a great deal—much more than many railwaymen appreciate—and we hope it will again grow in strength when hostilities end.

■■■■

British Railway Investments in Mexico and Uruguay

Two of the South American States in which British investment in railway undertakings is in a parlous position are Mexico and Uruguay. In the former country statistics issued by *The South American Journal* show that last year, as for the past nine years, there was no return whatsoever on the £45,595,968 of total capital invested, and quoted on the London Stock Exchange. It should not be overlooked that a large part of the sum invested does not represent the money found for railway building in this country, but is the result of schemes of re-arrangement for the settlement of outstanding defaults, so that the position is even worse than it appears at first sight. In Uruguay, the amount invested is £12,956,323, on which last year £70,645, or 0·5 per cent., was received as interest, leaving £11,428,334 unremunerated. The return on Uruguayan railways has been very small indeed for many years; it has been below 1 per cent. since 1935, and it

has not reached 5 per cent. since 1929. Before then the average return for a considerable period varied between 4, 4½, and 5 per cent., although there was always a number of the smaller concerns which did not make any distribution to junior stockholders.

Committee on Patent Law

In the House of Commons on April 25, the President of the Board of Trade stated that he had appointed a committee to consider and report as to what changes, if any, were desirable in the Patents & Designs Acts, and the practice of the Patent Office and the Courts in relation to the matters arising therefrom. In particular, the committee has been requested to give early consideration to, and to submit an interim report on, the initiation, conduct, and determination of legal proceedings arising under the Patents & Designs Acts, and the provisions of these Acts for the prevention of the abuse of monopoly rights. In doing so it has been asked to suggest any amendments of the statutory provisions or of procedure thereunder which would facilitate the expeditious settlement and a reduction of the cost of legal proceedings in patent cases, and would encourage the use of inventions and the progress of industry and trade. Mr. Kenneth Swan, K.C. is to act as Chairman of the Committee, and the seven members include Captain B. H. Peter, Managing Director of the Westinghouse Brake & Signal Co., Ltd.

Control of Canals

Brief details were given in our last week's issue of the arrangements which will apply in relation to wartime Government control of the canals. In certain respects it would seem that the agreement which has been reached with the Government is rather more satisfactory than that under which the railways are operating. In particular, the average net revenue for the basic period is struck at three years when traffic was higher than in the case of the railways, and the variations in the fixed annual sum in respect of individual undertakings give scope for practical encouragement for changes in conditions which does not apply in the case of railways. Any increase in the aggregate deadweight tonnage capacity of craft used at the commencement of control as compared with that in commission in the basic period is to be a factor in this adjustment, and, also, further allowance is to be made in the case of power-driven craft. That is to say, in the canal agreement the use of more and improved craft will be a matter of benefit to the undertakings. The railway companies, of course, under their flat-rate rental agreement, derive no benefit from new motive power or rolling stock which has been introduced on their lines, nor from the many instances of greater efficiency in working.

The First Railway in Norfolk

It is representative of the way in which the railway system of Great Britain was evolved that many counties had self-contained local railways before they were linked with the metropolis. Norfolk is such a county, and, although the people of Norwich had in mind a rail connection between their city and London at an early date, the first railway into Norwich, and also the first railway in Norfolk, was that of the Yarmouth & Norwich Railway Company which opened its line from Norwich to Yarmouth for public use on May 1, 1844. But for financial difficulties, this ground might have been covered by the Eastern Counties Railway, and when this proved impracticable, local interests secured the incorporation of the Yarmouth & Norwich Railway on June 18, 1842, with George Stephenson as Chairman, to link Norwich with the port. It was the first railway in the country to adopt electric telegraph block working from the beginning, and private persons were also permitted to use the railway telegraph. The story of this railway has just been told in an admirable centenary booklet, published by the L.N.E.R., of which we publish a notice on page 462. The account is brought right up to date and includes mention of the fact that Norwich was the target for one of the first air raids of note on this country, when Thorpe Station and the locomotive sheds were hit on July 9, 1940. Subsequent air raid damage is also mentioned, but the full story of the vital part played by the L.N.E.R. Norfolk lines cannot be told until after the war.

Centenary of One-Time London Terminus

Because the London & Greenwich Railway persisted in demanding its Parliamentary maximum toll of 4½d. a passenger for a distance of 1¾ miles, the London & Croydon, London & Brighton, and South Eastern Railways felt that their access to London Bridge Station was obtained at a prohibitive rate. Parliament therefore sanctioned (by Act of 1843) a branch from the Croydon Railway to Swan Street (near the Bricklayers' Arms, in the Old Kent Road) to be built by the South Eastern Railway (a two-thirds share), and the London & Croydon Railway (one-third share), and this Bricklayers' Arms branch, with a terminal station often referred to as designed to serve the West End of London, was opened on May 1, 1844; it cost about £250,000. From its opening, Dover trains of the South Eastern Railway ran alternately from it and from London Bridge, until November 1, 1844, when arrangements were made for conveying passengers to either terminus by all trains at equal fares. At first, also, all London & Croydon traffic was removed to Bricklayers' Arms, but, under a temporary toll arrangement, a considerable portion of it was restored to London Bridge on July 25, 1844. Clause 20 of the authorising Act empowered the South Eastern Railway to buy the one-third share of the London & Croydon Railway on giving six months' notice, and this course was adopted in 1846. The S.E.R. had leased the London & Greenwich Railway from January 1, 1845, and seems to have withdrawn its main-line trains from Bricklayers' Arms in October, 1846, although first class passengers continued to be conveyed by the night goods train from Bricklayers' Arms to Dover until January, 1851. Local trains from Bricklayers' Arms ran for about one year more, and it then became a goods station, excepting for occasional use for excursion trains.

The Bridge Engineer's Job

There is little doubt that the bridge engineer's job provides wider scope for ingenuity and originality than most others on railways. Our correspondents in various parts of the world are frequently providing fresh proofs of this fact, and one of them in India furnishes us with the latest example that has come to our notice in the article appearing on page 472 of this issue. In it is described a novel method of withdrawing or dismantling a 150-ft. through girder span in the wilds of the North West Frontier, or, to be more correct, in Baluchistan. The attachment of a second span end-on to one that has to be launched across a river or ravine is not new, but the erection of a strut over the junction point of two such spans and the conversion of the whole structure into double cantilever by using suspension chains from the strut to the spans for the withdrawal of the original span are not daily practice. The details of the scheme were carefully worked out, especially in connection with the avoidance of the near-by cutting in the withdrawal. The use of axles as rollers carrying a very heavy concentrated load and the provision of safeguards to insure strict adherence to alignment during the movement of the 300-ton structure are also noteworthy. In a completely different field of action, the same Bridge Branch also recorded a remarkable achievement recently, in completing a 2,100-ft. temporary pile-and-girder bridge across part of a breach within the short period of two months, by driving 640 piles and erecting 70 30-ft. spans to carry broad-gauge main-line traffic, as described in our March 31 issue.

Stainless Steel Coaches

In a recent address to the Railroad Division of the American Society of Mechanical Engineers, Mr. Edward G. Budd gave some convincing reasons for the use of stainless steel in building lightweight stock for streamline trains. The well-known car manufacturing company bearing his name, which has pioneered in building stainless steel trains such as the various Burlington "Zephyr" trains, the El Capitan of the Santa Fe, and many others, uses steel with a tensile strength of about 67 tons per sq. in., which derives its qualities of combined strength, ductility, and resistance to fatigue from cold rolling. In this condition it can be pressed cold into required shapes, and also welded, and thus, without the distortion of a framed structure that would result from heat treatment, it has been possible to build coaches of 45 tons weight which have a greater resistance to impact than previous coaches of conventional design and construction weighing over 70 tons. Moreover, the stainless steel bodies have a most attractive colour, and require no protection by paint, for their corrosion resistance is greater even than that of gold or silver. Dust and dirt are readily wiped off them. The beauty of such trains is a commercial asset to any railway using them, and an attraction to all potential passengers, but the greatest value of the stainless steel construction is the reduction in weight which permits cuts in running times without increase of motive power.

"Duplex Roomette" Sleeping Cars

Among the immediate post-war developments in passenger service in the United States one that is likely to have an extensive vogue is the lightweight duplex roomette sleeping car. It is realised that the old Pullman standard sleeper, with its convertible "sections," each containing upper and lower berths, and with no greater privacy at night than the curtains drawn along both sides of a middle aisle, has had its day. Though

many luxurious single-room sleepers are in service, the demand for sleeping accommodation on long journeys is so great that vehicles less weighty in proportion to their passenger accommodation, and therefore less expensive for the traveller, have become a paramount need, which is largely solved by the roomette car. By the most ingenious disposition of space, whereby the rooms are dovetailed into one another on different levels, 24 single rooms, 12 on each side of the central vestibule and each completely self-contained, are fitted into a single car, and it is hoped to sell such accommodation at a price but little above that hitherto charged for a lower berth in one of the open section cars. In the daytime the beds are made up but completely out of sight, giving the passenger a comfortable little private room; as the time for retiring comes, after preparing for rest in the same spacious conditions, he is able, practically at a touch, to pull the bed into position ready for use.

▪▪▪▬

A One-Aspect Signal System

The question of whether signals should show 2, 3, 4, or even more aspects, and what such aspects should be and the indications conveyed by them, has been vigorously discussed by signal engineers on numerous occasions, but to be satisfied with one aspect and make a block signal system to work satisfactorily under those conditions is something seldom heard about. It has been done and, to credit all accounts given of it, with very fair success, under the special conditions obtaining on some parts of the Chicago Elevated, as briefly explained at page 471 in this issue. It is well known that the running on much of the elevated routes in America closely resembles tramway working; the trains are driven on sight, but signals are used to give special protection at curves or other places where caution is required particularly or on some routes throughout. In the latter case the working is then no different from that of any urban electric service. The Chicago West Side Elevated sought a means of establishing the space interval principle without the expensive equipment usually considered indispensable, and operated a large mileage with success on the methods described in our article. We believe they are still in use. They served the line well for many years but may now have been superseded.

▪▪▪▬

Level Crossings in Minneapolis

The difficulties created by the policy adopted in the early days of American railways of building cities around the lines is well exemplified in the situation obtaining on the Milwaukee line in Minneapolis, where the route from the terminus near Washington Avenue traverses the heart of a business district on the level and has 13 crossings over important streets, one after the other, with as many as 11 tracks on the railway at some places. The problem of controlling the vehicular traffic in this and similar localities in other cities is a very difficult one. The provision of barriers and watchmen is expensive and cumbersome in working, and the use of automatic signals often involves the working out of complicated circuits to cover partial movements, shunting movements and others which may stop short of a crossing for an appreciable time and must not be allowed to tie up the highway traffic. In this case the complication was so great that automatic working could not be employed and the crossing warning signals, which are combined with traffic lights, were arranged to be worked, sometimes in groups, by watchmen stationed in elevated signal boxes who are able to use their discretion and control all movements to the best advantage. Nearly 1,500 vehicles hourly use one crossing.

▪▪▪▬

Welded Tender Tank Design

The surges set up in the water in a locomotive tender when the brakes are suddenly applied at speed can promote severe strains in the joints of the structure, notwithstanding the baffle plates usually fitted. Rivets may thus be loosened, and leaks caused; and the trouble is all the more likely when (as often happens) weight restrictions limit the thickness of the plates to a smaller amount than can be relied on for a sound riveted joint. An excellent way out of the difficulty is afforded by the use of welded tanks, and in the current issue of *The Welder*, Mr. G. W. McArd shows examples from locomotives on the Buenos Ayres Western Railway and also cites L.M.S.R. practice in welded tender tank construction. He shows how, in cases where the bottom plates are thicker than the side plates, a satisfactory weld can be made, and illustrates the simplicity of the method when all square corners are dispensed with, and rolled edges substituted in their place. He suggests that future constructional methods may usher in the building of tanks in sections in similar manner to the welded ships of today, the sections being brought together finally and welded after careful lining up to ensure accuracy in dimensions and in the squareness of the job.

Kenya & Uganda Railways

THE Kenya & Uganda Railways & Harbours system consists of some 1,625 miles of open-line metre-gauge track, with lake steamer services and road motor transport, and includes the Port of Mombasa. Kilindini Harbour at Mombasa, generally considered as the finest natural harbour on the East Coast of Africa, and serving both Kenya and Uganda, possesses a deep-water quay for the accommodation of ocean-going steamers and is equipped with every facility for the handling of the many classes of traffic that pass through the port. Originally running from Mombasa to Kisumu on Lake Victoria, and known as the Uganda Railway, the railway was built by the Imperial Government in connection with the suppression of the slave trade in East Africa. Construction began in 1896 and the first locomotive ran into Port Florence (now Kisumu), 587 miles distant from the Indian Ocean, in 1901, although it was not until the beginning of 1903 that the line was opened for the carriage of public traffic. The main line has been extended since from Nakuru, in Kenya, to Kampala, in Uganda, and the line from Nakuru to Kisumu now forms one of the principal branch lines. The present main line is 879 miles long and rises, from sea level, to an altitude of 9,130 ft. at Timboroa, in Kenya, whence it falls to 3,905 ft. at Kampala. Kisumu, on Lake Victoria, is 3,758 ft. above sea level.

Of the principal branch lines, one runs from Voi to Kahe, forming a connection with the Tanganyika Railway system, and serving the Kilimanjaro and Arusha areas in Northern Tanganyika. Another goes from Tororo to Soroti, in Uganda, and serves the Eastern Uganda cotton districts. Minor branch lines run from Nairobi to Nanyuki, serving the West Kenya district adjoining Mount Kenya; from Gilgil to Thomson's Falls, serving the fertile areas of the Laikipia Plateau and the Aberdare range of mountains; from Rongai to Solai, serving the farming industry in the Solai and Subukia valleys; from Leseru to Kitale, tapping the areas producing maize and coffee and from Kisumu to Butere, serving the North Kavirondo District and the Kakamega goldfields. A private line to the extensive soda deposits at Lake Magadi is also operated by the railway administration.

Steamer services are operated on Lakes Victoria, Kioga and Albert and the River Nile. The Lake Victoria service is operated by two steamers of 1,200 and 1,300 tons respectively, which maintain a weekly service round the lake, supplemented by a fortnightly tug and lighter service to the smaller ports and connecting with the Tanganyika Railways system at Mwanza. The services on Lake Kioga and the River Nile are operated by shallow-draught stern-wheel steamers and on Lake Albert by a modern twin-screw vessel of 860 tons. A fortnightly through service is maintained connecting with the Sudan Railways *via* Lakes Kioga and Albert and the River Nile. The overland portion of this latter service, between Masindi Port on Lake Kioga and Butiaba on Lake Albert, is operated by means of motor transport.

The Kenya & Uganda Railways & Harbours, besides providing for the needs of the essential industries of the territories, and also forming an important link in the through route from Capetown to the Mediterranean, serves districts which are of unending interest to the tourist, big game hunter and photographer. Passing through coastal palm groves, the traveller, in a comfortable and well-equipped train, climbs through many miles of thorn scrub teeming with game, to reach Nairobi, the capital of Kenya and a modern town with numerous attractions. A map showing the transport facilities in considerable detail was published in our November 19, 1943, issue.

▪▪▪▬

Ten Years of Railway Progress in Western Australia

DURING his ten years as Commissioner of Railways, Western Australia, Mr. J. A. Ellis, whose re-appointment to that office for a further five-year term was recorded briefly in our April 21 issue, and of whom a portrait and biography appear on page 475 of this issue, has pursued a successful policy for the improvement of public facilities, in connection not only with the Government Railways, but with tramways, ferries and electricity supplies, which he controls by virtue of his post. Many of the developments summarised below have been described in *The Railway Gazette*; and a map of the Western Australian railway system was published in our October 29, 1943, issue.

A comprehensive rehabilitation programme for railway rolling stock was being carried out when war intervened; and, indeed,

work on this continues as far as opportunity offers. Orders were placed recently for the materials for six modern-type sleeping cars, but wartime delays have held up construction. Apart from this, old second class six-berth sleeping cars have been converted to four-berth vehicles, and shower baths have been provided in first class coaches operating on the Kalgoorlie, Wiluna and Albany services. Other improvements to passenger rolling stock carried out in the last ten years include replacement of the old-type hard cushioning in many coaches with Latex rubber seating; the substitution of bogies of a new type to give better riding qualities; provision of lounge cars on interstate trains (temporarily withdrawn on account of war conditions); and the fitting to coaches used on long-distance trains of new-type screw couplings, designed at the Midland Junction Workshops by direction of Mr. Ellis.

Construction of wagon stock has been carried out continuously, with the incorporation of modern improvements in accordance with traffic requirements. Livestock traffic has been catered for specially by the building of livestock wagons of improved types; the installation of, and extension of existing, yards at various centres; and the provision of unloading races into the yards at various places to facilitate the handling of small stock from motor vehicles. Motive-power developments include the construction at Midland Junction of ten "River" class (4-6-2) locomotives, placed in traffic in 1938-39, and of three heavy goods engines of entirely local design; seven more of the latter type are being built. Six diesel-electric railcars, placed in service in 1938, marked the introduction of diesel-electric traction in Australia. They haul trailers built locally, and have improved considerably country passenger services. Tenders are now being called for railcars of greater haulage capacity.

Mr. Ellis has been associated with an extensive programme of permanent way works. A railway has been built to connect the mining centre at Big Bell with the main system, and the main eastern line has been doubled from Tunnel Junction to Mount Helena and from Spencers Brook to East Northam. Track work has included relaying, regrading, deviation, and cambering, which has made possible the haulage of heavier loads and the maintenance of higher overall speeds. The use of automatic signalling has been extended, and automatic level-crossing protection devices, with flashlight signals, have been installed at a number of points. The station yards at Northam and Brunswick Junction have been re-modelled, and additional work on an extensive scale is in progress at Northam Locomotive Depot.

Developments in road transport include the extension of tramway and bus services, and the replacement, in some cases, of trams with trolleybuses. The road passenger service introduced between Perth and Kojonup to obviate a roundabout rail route has proved very successful. In connection with the Government Electricity Supply, the sixth unit at the East Perth Power Station was completed and placed in commercial operation in 1938, at a total cost of £650,000. Preparations are in hand for the calling of tenders for plant for a new power station to meet the growing demands for electric current. Ferry-service improvements include the introduction recently of a new vessel on the South Perth service.

Canadian National Railways

WITH passenger traffic four times that of 1939 and freight traffic more than double that of the last peace year, the gross revenues of the Canadian National Railways in 1943 reached a record total. Net operating revenue after payment of operating expenses was also greater than ever before, and the operating ratio for the year was the best in the railway's history, namely 73·64 per cent. as compared with 76·93 per cent. in 1942 and 81·99 per cent. in the peak peace year of 1928. After providing for interest, $8,390,676 for taxes, $19,069,000 for the creation of a pension reserve, and for other charges there was a cash surplus of $35,639,412 in 1943, an increase of $10,576,144 on the surplus for 1942.

Freight revenue in 1943 was higher by $36,438,000 or 12·6 per cent. There were no increases in rates. Passenger traffic in 1943 was more than four times that of 1939, and passenger receipts showed an advance of $18,594,000, or 38·5 per cent., over those of 1942. Increases were also secured in the revenues from mail, express, sleeping car, dining car, hotels and commercial telegraphs. Traffic moved in 1943 was 17·3 per cent. greater than in 1942, the previous peak war year, and 44·7 per cent. greater than in 1928, the peak peace year. This great flow of traffic was handled by a staff which numbered only 6·9 per cent. more than in 1942; with an increase of 0·2 per cent. in the number of locomotives owned, and with increases of only 2·5 per cent. and of 2 per cent. respectively in the numbers of wagons and passenger vehicles owned by the system. The vastly increased war traffic in 1943 was handled with 16·6 per cent. fewer locomotives, 15·4 per cent. fewer wagons, and 5·1 per cent. more passenger carriages than was the traffic of 1917 in the last war. Diversions of traffic from peacetime routing contributed to the unprecedented volume of freight traffic. Throughout the year, a number of Orders directed towards regulating movements of certain commodities and increasing the loading of all types of equipment, was issued by the Transport Controller. These, coupled with the co-operation of Boards of Trade, Industrial Traffic Leagues and individual traders, helped the company to achieve considerable conservation of equipment. The company also extended its activities as a manufacturer of munitions, ships and naval appliances. Financial results of the past two years are compared in the accompanying table:—

	1942	1943
	$	$
Freight revenue	288,462,195	324,899,724
Passenger revenue	48,297,258	66,891,034
Total operating revenues	375,654,543	440,615,954
Total operating expenses	288,998,674	324,475,669
Net operating revenue	86,655,869	116,140,285
Net railway operating income	74,930,221	81,633,938
Total income	81,881,738	91,548,501
Deductions from income	7,836,277	6,246,045
Net income available for interest	74,045,461	85,302,456
Interest charges	48,982,193	49,663,044
Cash surplus	25,063,268	35,639,412

Operating expenses for 1943 increased $35,476,000, or 12·28 per cent., as compared with an increase in operating revenues of 17·3 per cent. Out of every additional $100 of revenue $45 was carried to net revenue. The relationship between additional revenue and expense can be considered as satisfactory, especially in view of the fact that the maintenance and operating accounts had to carry a number of exceptionally heavy charges. For deferred maintenance the amount charged to operating expenses was $11,150,000; for depreciation on locomotives, wagons, passenger carriages, etc., the charge to operating expenses was $19,829,000, or approximately $7½ millions more than would be provided under average traffic conditions. The cost-of-living bonus paid on Canadian lines amounted to $18,918,000, of which $16,396,000 was charged to operating expenses. Higher wage rates on the United States lines increased operating expenses by $1,556,000. An amount of $19,069,000 was appropriated out of net revenue for pension reserve. Operating expenses also absorbed the cost of creosoting sleepers used in replacement. In previous years this cost was charged to investment account. Due to severe winter conditions, removing snow and ice cost $3,758,000, as compared with $2,220,000 in 1942.

Of the total capital expenditure of $23,333,089 during 1943 an amount of $19,148,543 was for new equipment. Delivery was received of 28 locomotives, 2,757 freight vehicles and 59 passenger vehicles. The number of locomotives now owned is 2,560; freight vehicles number 92,579, and passenger train vehicles 3,409. Tons of freight carried in 1943 were 80,426,781 (71,545,237), ton-miles revenue freight 36,326,990,666 (31,729,325,493), passengers carried 34,500,731 (30,363,290), and passenger-miles 3,618,808,393 (2,707,890,296).

The Pullman Anti-Trust Suit

JUDGMENT has now been given by the District Court of Philadelphia in the suit brought by the Federal Government of the United States against Pullman Incorporated for violation of the Sherman Anti-Trust Act. As reported in the February 27, 1942, issue of *The Railway Gazette*, the gravamen of the charge was that by the action of its two wholly-owned subsidiaries—the Pullman Company, which operates a pool of cars providing the whole of the sleeping car and the majority of the dining, parlour, and lounge car facilities in the United States, and the Pullman-Standard Car Manufacturing Company, which builds all the Pullman stock—the railways are prevented from operating their own sleepers, if they so desire, and other car-building companies are excluded from the building of luxury rolling stock. That is to say, in this realm Pullman has established a practically exclusive monopoly. Chief among those challenging this monopoly was the Edward G. Budd Manufacturing Company, which has done so much towards the development of lightweight streamline stock; in his evidence Mr. Edward G. Budd claimed that Pullman had so securely closed the door as to make the market for outside sleeping car construction "hopeless."

Throughout the hearing, the Government attorneys have contended that, to satisfy the Anti-Trust Act, Pullman must separate

its sleeping car operating business from its manufacturing activities; that the field of sleeping car operation must be opened to the railways or to any other company desiring to enter into competition; and that Pullman must establish a system of competitive bidding for the building of new cars to be used in its own Pullman pool. The decree proposed by the Government attorneys sought to compel Pullman to dispose altogether of its manufacturing business, but assumed that it would continue to service and operate its cars. In handing down its opinion, however, the District Court, although upholding the separation of the Pullman operating and manufacturing businesses, holds that the Government has no power to dictate to Pullman as to the nature of the business in which it shall continue to engage. That is to say, Pullman, if it so desired, could reverse the process by electing to remain in the manufacturing business, and by disposing of the sleeping car operation, which is considerably the less profitable of the two. Even in the prosperous 'twenties, the Pullman Company, servicing and operating the cars, never paid more than 7½ per cent., and from 1938 to 1942 the return had dropped to less than 1 per cent.

But the question is now being asked as to who would render sleeping car service if the Pullman Company were to abandon its nation-wide operations. At present there are about sixty contracts in force with railways or groups of railways, on a basis whereby the railways share in the revenue per car if it exceeds a predetermined amount. From some runs the revenue is larger than on other runs, but that from the remunerative runs partially or wholly offsets that from runs which are not remunerative. Also, because all the sleeping cars are in a pool of ample dimensions, under single ownership, each railway can contract for as many cars as it can use regularly, and obtain the use of additional cars when necessary. As with the International Sleeping Car Company in Europe, it is the existence of so many through sleeping-car runs, covering more systems than one, that makes the pool system so desirable. It is possible that the larger railways might form a sleeping-car pool, but if they did so, they might require the smaller railways, with a light passenger traffic, to make good any losses incurred or be deprived of service. Operation of the cars by individual railways would destroy all the advantages of pooling; and it is calculated that to render adequate service in such conditions, an addition of 3,000 or 4,000 cars to the existing stock of about 7,000 would be inevitable.

The advantages of pooled operation of sleeping cars have never been more conclusively demonstrated than during the present war, when the Pullman Company, as is admitted on all hands, has done a job of amazing efficiency by the way in which it has handled both civilian and military traffic on an entirely unprecedented scale without any addition to its fleet of cars. The Supreme Court will give the final decision as to whether the competitive operation of sleeping cars is required by the Anti-Trust Act, but as has been proved by the evidence in this case—and evidence on the whole by no means unfavourable to Pullman—such a decision would hardly be sound economics or sound sense. Indeed, as our contemporary, the *Railway Age*, comments in an editorial on the matter, in view of the fact that American sleeping-car service, at the outbreak of war, was better than ever previously, and was constantly improving, "it is to be hoped that the Supreme Court will decide, in effect, that the Anti-Trust Law does not violate commonsense."

Ten-Coupled Locomotives Again

THERE is an exceptional degree of interest in the latest austerity design of locomotive, which has been completed by the North British Locomotive Co. Ltd., for the Ministry of Supply. The new engines are of the 2-10-0 type, with eight-wheel tenders, and are described in detail on p. 469. The design generally represents an enlarged edition of the 2-8-0 austerity engines already noticed in these pages. The change from eight to ten coupled wheels is a step which marks a new trend in British locomotive practice, in view of the fact that these engines are designed to be produced in quantity, whereas only one example of each of the other two ten-coupled locomotives in this country was built. Already some of these new engines are working on heavy freight trains on the L.N.E.R. main line where they are beginning to oust the "O2" class locomotives which have worked this traffic for many years.

The pioneer ten-coupled locomotive in this country, the Great Eastern Railway's Decapod of 1902, suffered from excessive axle loading. This was aggravated by the fact that it was a tank engine, with the supplies of water and fuel adding to the total weight. In the new design an eight-wheel tender, with rigid wheelbase, accommodates coal and water, and the greatest loading on the coupled axles is only some 13 tons 9 cwt., as against some 16 tons on the Decapod. If the latter could have rejoiced in so light an axleloading, it might have been running today, with many others of its type. Indeed, lightness—an essential ingredient in the austerity recipe—is one of the most pronounced features of the new 2-10-0s, the total weight of which is only some 8 tons more than a Great Northern Atlantic, and incidentally the new locomotive is the same amount heavier than the 2-8-0 austerity type.

The boiler is of generous proportions and its design contains many features of interest. Arch tubes now make their appearance; they are three in number and 3 inches in outside diameter, and should be of the greatest assistance in raising steam. The excellent steam space, especially over the firebox, is most noticeable; and the decision to incorporate a combustion chamber will make for marked economy in fuel consumption, and will also assist the maintenance generally by obviating excessively long fire tubes. A very deep hopper-shaped ashpan is provided, filling most of the space between the fourth and fifth pairs of coupled wheels. Unlike the 2-8-0s, which were provided with air insulation between boiler barrel and clothing plates, these ten-coupled engines have the more orthodox lagging, consisting of asbestos mattresses on the boiler barrel and firebox, and plastic magnesia on the throat plate.

The same careful choice of both materials and constructional methods has been followed, and the official drawings of the 2-10-0 locomotives give the impression of great simplicity in construction and economy in maintenance. No attempts are made to compensate the spring gear for the coupled wheels, although the designers have permitted themselves this luxury on the tender. Their long rigid wheelbase should help them to ride well, and their designs of cab and tender afford excellent look-outs in each direction, so they should be popular with their crews.

Although these engines have made their debut in British workings, their general features would make them especially suitable for service on standard-gauge lines abroad, especially for heavy freight services, or even for passenger traffic in mountainous regions. So much attention has been given by Allied aircraft to the destruction of locomotives, in their attacks on enemy or enemy-occupied countries, that a serious locomotive shortage will persist for some years after the war. When hostilities cease, however, these new ten-coupled engines, if available in sufficient numbers, could play a worthy part in the reconstruction of Europe.

Waste from Steam Leakage

FOR some years the chief mechanical engineers of various railway companies have been warning the factories under their control of the harmful effects of leakages in the compressed air lines that serve the various machines and plants. By means of simple and effective posters displayed in prominent positions in the shops, the enormous waste represented by leakages equivalent to various-sized holes is immediately apparent. This method of presentation has had good results, for when employees see the result of a simple air leakage reduced to terms of hard cash they are more careful with this valuable auxiliary. There is, however, another aspect of leakage and waste which deserves the most careful consideration. The leakage of steam from locomotives, standing and running, and from coaching stock during the heating season, must be equivalent to far greater losses than even result from compressed-air wastage in the limited number of factories owned by the companies.

Let the chief mechanical engineer's staff of any railway note the number of locomotives from which steam is unnecessarily exuding, and they will be surprised at the manifestation of waste that can be seen from day to day. There are sometimes glands blowing in piston rods and valve rods; occasional "whimperings" of steam from covers; safety valves commencing to blow off before their right pressure or trickles of steam from small valve glands and lubricators, injectors, etc. In rolling stock there is often a perfect shroud of steam arising from under the running boards (a mark of faulty adjustment in the steam traps), and steam sometimes billowing out between the coaches, telling of poor maintenance work on the flexible couplings. In the aggregate this must be quite a serious matter and from a purely technical viewpoint the steam locomotive is not so efficient as a power plant that we can afford to throw anything away. The modern packings for pistons, valves and small glands are quite efficient, but they need care and maintenance. The old argument thus arises—"There's a war on," but provided that we already know this, the fact remains that these types of leakage are really more important than the air leakages in factories over which the head offices have taken such salutary action.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Radio-Telephony on Trains

Canadian National Railways,
European Head Office,
17-19, Cockspur Street,
London, S.W.1. April 28

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Following the announcement of the developments of radio-telephony on trains of the L.N.E.R., there have been printed in the "lay" press up and down the country paragraphs of varying accuracy seeking to trace who first realised their ambition to speak with moving trains by telephone.

We awaited with confidence for *The Railway Gazette* to assign the credit for the early pioneering work in train radio-telephony to the quarters where it properly belongs, namely, the Canadian National Railways. The editorial in today's issue, however, makes no mention of the C.N.R., nor of the late Sir Henry Thornton, who was himself closely identified with this form of communication.

The following quotation from the *Canadian National Magazine* of June, 1930, would well bear repetition in the columns of your worthy journal: "Those who take an interest in the march of Canadian events must have been aware of the growth of a new tradition. Each year, like a hardy annual, some new achievement of the Canadian National Railways blossoms to enliven the Canadian scene. One year it was radio-reception on trains; another the record breaking trans-continental run of the first oil-electric car. . . . Conforming with its established tradition, Canada's national railway has made its 1930 contribution to railroad history and to the record of Canadian achievement. On the road's flagship, *The International Limited*, the world's first two-way telephone service to and from a moving train was inaugurated on Sunday, April 27."

Later, in the same article in the *Canadian National Magazine*, is written the following: "One of the first conversations to be held from the second section of the *International Limited* on the inaugural day was between the Chairman and President of the Canadian National Railways, Sir Henry Thornton, and the European Vice-President, C. J. Smith." (Mr. Smith was on that occasion speaking to Sir Henry from this, Cockspur Street, office).

I enclose two photographs which bear on the subject and which were taken in the year 1930.

Yours faithfully,
E. G. LAING,
Acting Publicity Representative

Two photographs taken in 1930, showing (left) Mr. J. C. Burkholder, who invented the two-way telephone service referred to in the accompanying letter, connecting the transmitting high-voltage lead-in on the roof of the coach "Minaki"; and (right) a portion of the side of the coach, which formed part of the International Limited of the C.N.R.

Publications Received

The First Railway in Norfolk. Published by the London & North Eastern Railway. 8¼ in. × 5¼ in. 24 pp. Price 1s. net.—The present stage of the war makes unadvisable any ceremony to mark historical events, and important railway centenaries are passing with little or no notice. In more peaceful times, it may be assumed that the opening of the first railway in Norfolk, that between Norwich and Yarmouth, on May 1, 1844, would have been celebrated a hundred years later by the joint effort of the municipalities concerned, and of the L.N.E.R. as successor to the old company. As it is, the L.N.E.R. has taken the interesting step of publishing an admirable historical brochure, which emanates from the company's Press Relations Office, and is doubtless the work of Mr. George Dow whose initials appear as the designer of the clear and informative frontispiece map. The illustrations are well chosen, and include ancient and modern stations, rolling stock, bridges, and locomotives. Moreover, the text is no mere assembly of familiar facts, but represents obvious research work justifying the permanent preservation of this booklet on a railway historical shelf. Appendix A lists the locomotives of the Norfolk Railway and their principle particulars, and is brought up to the moment by an addendum slip revealing new information that has come to light as the result of researches made by Robert Stephenson & Hawthorns Limited. Another appendix summarises the Norwich and Yarmouth train services at representative dates over the past 100 years. Various crests and coats of arms add to the interest and appearance of a booklet upon which the L.N.E.R. is to be congratulated.

Emergency Legislation affecting Limited Liability Companies. By E. P. Cawston, B.A., LL.B., A Solicitor of the Supreme Court. London: Fiscal Press Limited, 234, Strand, W.C.2. 8¾ in. × 5½ in., 16 pages + folding charts. Price 3s.—Every section of the community is affected in wartime by a vast volume of emergency legislation, and those whose interests cover a wide sphere are compelled to file a considerable amount of voluminous literature. Two firms of law publishers have systems of loose-leaf filing, with elaborate cross indexing, and in each case the subscription cost and wide scope far exceed the requirements of the ordinary small limited company. It is to serve the last-named that Colonel Cawston has prepared this useful desk guide. The scope is limited to the effect of emergency legislation on the company as a corporation, as obviously the impact of war legislation on the industrial activity of any particular company must be the subject of specialised attention. A supplementary section deals with workmen's compensation (temporary increases), and also contains two useful charts displaying the current position in a readily accessible manner.

Locomotives of the Taff Vale Railway and **Locomotives of the Somerset & Dorset Joint Railway and the Irish Narrow Gauge Railways.** Compiled by M. C. V. Allchin and obtainable from him at "Glenvale," Portchester Road, Fareham, Hants. 8½ in. × 5½ in., 16 pp. and 12 pp. respectively, paper covers. Illustrated. Price 2s. 1d. each, post free.—These are the last two in the series of five booklets dealing with locomotive data of pre-grouping companies. Details given of the locomotives include the wheel arrangement, the builder and building date, the works number, and the running numbers; the photographic additions, which consist of twelve illustrations on art paper, make the publications all the more interesting.

The Scrap Heap

THOUGHTS ON THE SECOND FRONT

An American Army newspaper quotes the sagest comment yet heard on the unwise optimism about a short war—"It's all over but the fighting."

* * *

In the Freight Auditor's office in Chicago of the Chicago, Milwaukee, St. Paul & Pacific Railroad a railwayman named Bob Franks is still employed, at the age of 84, who entered railway service at Rockford, Illinois, when 14 years old. Seventy years of continuous railway employment is probably a world's record.

* * *

Recently traffic on the electrified lines of the Norfolk & Western Railway at Roderfield, West Virginia, was held up for an hour by failure of the current. The short-circuit which occasioned the stoppage was caused by a snake which had climbed to the top of an 11,000-volt transformer.

* * *

POST-WAR CONTROLS

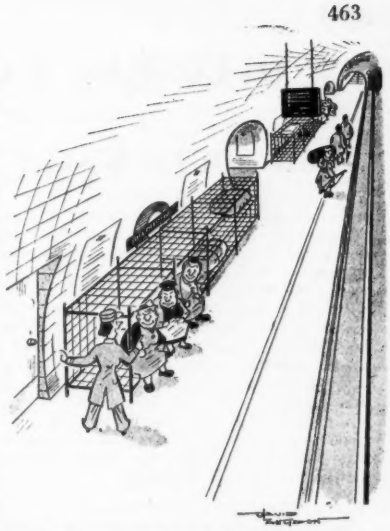
Foreign countries will probably be influenced by our example, and if we institute control at our end, they will institute counter-controls at theirs. I can visualise a foreign customer, wishing to buy an electric motor, a machine-tool or a turbine, and instead of the transaction being discussed and carried out with a representative of the manufacturer, he may be compelled to submit details of his requirements and of his life history in quintuplicate to a special department of his own government. In due time his government will decide on the country from which he may obtain his machine. If it happens to be England, then our Government Department, after long consideration, will decide whether the order for a British machine may be approved or not. If the decision is in the affirmative, then they will probably specify a particular maker, who is to be entrusted with the order, and who may be (and probably will be) someone of whom the unfortunate customer has never heard or one whose goods he would not buy at any price. Even if everything goes smoothly, the time that will elapse will be so long that the customer will probably have changed his mind altogether, or gone into some other kind of business, which does not require machines.—*Mr. Alfred Herbert in the "Machine-Tool Review."*

* * *

To travel by rail between the three towns which figure in the title of the Atchison, Topeka & Santa Fe Railroad, one of the largest and most influential in the United States, is not the easiest of tasks. The A.T. & S.F. passenger train between Atchison and Topeka, Kansas, is a rail motor which starts at 8.35 a.m., and takes 1 hr. 40 min. to cover the 51 miles. But Santa Fe is 772 miles away, and to get there the passenger from Atchison must wait over 12 hr. at Topeka for the Chief, an all-Pullman extra fare train which starts at 11.30 p.m., and reaches Lamy, New Mexico, the junction for Santa Fe, at 2 p.m. next day, having covered 718 miles in 14½ hr. Here he is stranded for the next 14 hr.; for although the capital of New Mexico, Santa Fe, is only 18 miles away, the only passenger service from Lamy is a mixed train at 6 a.m., arriving at 7.10 a.m. The complete journey of 823 miles thus takes over 46½ hr.

"Wendell Wilkie [third from front] is candidate for a dining-car seat as he travels west on transcontinental politicking trip"

[Reproduced from "Life"



"Would you people mind shouting 'Mind the doors!' rather raucously while I slip away for a quick cup of tea?"

[Reproduced by permission of the proprietors of "Punch"

YOU HAVE BEEN WARNED!

The following unofficial but pregnant warning to railwaymen about to cross the fast lines at Kenton, Mdx., on their way to the goods yard, has been inscribed on the abutment of a neighbouring overbridge:—

STOP
LOOK
LISTEN
OR
R.I.P.

* * *

A NOTE FOR PLANNERS

But did we go to war to improve our social conditions? Did we hope, by lavish expenditure on the machines of death, to improve a standard of living? Is it not more real and honest to say that we went to war so that London should not know the pollution of a Nazi victory parade; that in Manchester's Albert Square its civic leaders should not hang from German gallows; that the Scottish and Derbyshire moors should not become sites for concentration camps housing and torturing the bravest and most loyal? That was the reality of our declaration of war, and it remains a reality today. A better world we may hope for after the war. We shall, however, still need to work for it. And, more than ever, we need—all of us—to work for it today.—*From the "Sunday Dispatch."*

* * *

TAILPIECE

(Salvage of all kinds will long be needed)

Navies gather, armies wait,
Air armadas sweep the sky,
Peace is not a distant date,
Sudden triumph may be nigh.
When at last it comes, take heed,
Salvage still will be our need.

Winters five of bitter war
Salvage has our watchword been.
Now with victory not far
Still the need for it is seen.
Lest our efforts be in vain,
Let the salvage bag remain.

Bits of string and bits of rag,
Scraps of metal old or new,
Put them in the salvage bag,
And conserve your paper too,
Paper bears the printed word
That is mightier than the sword.

B. C.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

NEW SOUTH WALES

Holiday Traffic

The New South Wales Government Railways were called on to deal with heavy passenger traffic from Sydney during the Christmas holiday period. In the two weeks ended January 2 last, 707 trains, which together conveyed 288,000 persons, were run from the city to country stations. In the corresponding period of 1942-43 a rather smaller number of passengers was carried from Sydney in 849 trains. In announcing the figures for last Christmas, the Commissioner for Railways, Mr. T. J. Hartigan, said that he considered the Railway Department to have handled satisfactorily a difficult situation.

Wartime Achievements

In the course of an article published recently in the *Sydney Morning Herald*, Mr. T. J. Hartigan, Commissioner for Railways, New South Wales, points out that, at the outbreak of war, the Government Railways of the State represented the largest industrial undertaking in Australia, with a staff of more than 40,000 and an invested capital of nearly £150,000,000; and stresses the resiliency of the organisation as shown by its meeting of demands never before made on it. In the year ended June 30, 1939, the tonnage of goods and livestock conveyed was approximately 15,000,000; whereas in 1942-43 the tonnage was about 20,000,000. During the same period the number of passengers carried increased from some 187,000,000 to 237,000,000.

To meet these demands every reserve locomotive had to be brought into use, and those due for scrapping were reconditioned; fortunately, more than 100 engines had been stored in serviceable condition against an emergency. Failures of locomotives in service have numbered only 4·4 in every 1,000,000 miles run. Three new engines have been placed in operation since the war began.

Rolling Stock

. In the last three years, nearly 1,500 goods vehicles were added to stock, of which 1,000 are 24-ton open wagons; the remainder includes flat wagons for the conveyance of military vehicles, hopper wagons and refrigerator vans. Mr. Hartigan explains that, to ensure quick turn-round, goods yards have been opened at weekends for receipt of traffic, and demurrage penalties increased (although rarely imposed, due to the good relations existing between traders and the Department of Railways). In 1942-43 each goods vehicle averaged 18,989 miles, compared with 13,159 miles in 1938-39, an increase of 44 per cent. The average mileage of a passenger vehicle increased by 42 per cent. during the same period.

New Works

Many crossing loops have been constructed throughout the system, and miles of sidings have been laid to war plants. A large number of buildings and other installations have been provided. One effect of the war was to cause a great increase in interstate rail traffic. Heavy trains arriving at frequent intervals threatened to produce congestion because of transhipment delays. This problem was met with a great measure of success by the construction of long transhipment platforms, with overhead coverings, and additional sidings, and by the provision of modern lifting appliances. Other means of expediting traffic have included improvements to the telephone train control and telegraphic systems.

UNITED STATES

A Santa Fe Collision

A serious collision occurred on January 13 at Novice, Texas, when an extra train of the Atchison, Topeka & Santa Fe Railway System ran into a westbound passenger train standing in the station. A heavy snowstorm was raging at the time, and, although the brakeman of the standing train had planted a lighted fusee on the track (the line concerned is worked by train order and without fixed signals), the driver of the special failed to see this round the curve by which the station is approached until he was nearly on the standing train, when two emergency brake applications proved insufficient. The dining car on the rear of the standing train telescoped the chair car ahead, in which w re travelling most of the seven passengers killed and the 40 injured.

Great Lakes Traffic in 1943

During the 1943 ice-free season, freight traffic on the Great Lakes, although it reached the second highest total on record, in the aggregate fell below that of 1942. The movement of iron ore, coal, grain and limestone amounted to 175,690,915 net tons, compared with 182,731,421 net tons in the previous year. The decline was chiefly due to the later break-up of the ice in 1943 than in 1942. For the fifth successive season the movement of coal exceeded 50,000,000 tons, and shipments of grain, which amounted to 422,000,000 bushels, were the largest in any season since 1928.

Baldwin's 70,000th Locomotive

On December 4, 1943, there passed out of the Eddystone Works of the Baldwin Locomotive Company the 70,000th locomotive built by that firm since Matthias W. Baldwin completed *Old Ironsides*, the first Baldwin locomotive, in 1832. The 70,000th is No. 2737, of the standard 2-8-0 "austerity" type, many of which are working in Great Britain. The Baldwin concern has thus performed the remarkable feat of turning out one completed locomotive, on the average, during every 14 hr. of its 112 years of existence.

URUGUAY

Fifth Railway Congress

A delegation from the South American Railway Congress has interviewed the President of Uruguay (Dr. Juan José Amezoga) and the Ministers of Foreign Affairs and Public Works, and has informed them of various decisions taken at a meeting in Buenos Aires, under the Chairmanship of Sir Guillermo Leguizamon (Chairman of the local committees of the Buenos Ayres Great Southern Railway Co. Ltd. and Buenos Ayres Western Railway Limited), of the Permanent International Committee of the Congress. These decisions are in connection with the Fifth Railway Congress to be held in Montevideo in 1945, pursuant to the resolution adopted at the Bogotá (Colombia) Railway Congress held in 1941. The President and Ministers have promised their full support.

As the Second Panamerican Engineering Congress is scheduled also to be held in 1945 (in Buenos Aires), it has been decided to exclude railway matters from the agenda of that Congress, so that they may be considered fully at the Fifth Railway Congress. A committee of the permanent international organisation of the South American Railway Congress, composed of Señores Enrique Chanourdie (President of the consultative local board of the Province of Santa Fé Railways Company), Arturo Noni (Director-General of Railways, Argentine Ministry of Public Works), and Joaquín Nuñez Brian, has been appointed to co-ordinate matters relevant to both congresses. With that end in view, the authorities of the Railway Congress are to establish contact with the Argentine Organising Committee of the International Engineering Congress.

It has been decided also to increase to eight the numbers of members of national permanent committees. In respect of that of Uruguay, it is stated that several appointments will be announced shortly. Señor Eduardo M. Huergo (General Manager of the Argentine State Railways) has been appointed a member of that of Argentina, and the Chilean committee has appointed two additional members.

CHILE

Long-Term Industrial Programme

According to information from Santiago, the Chilean Government has signed a contract for the purchase of the tramways systems of Santiago, San Bernardo and Valparaiso from the American & Foreign Power Co. Inc. for $3,000,000, and for a five-year option to buy out that company's investments in the Chilean Electricity Company. This action on the part of the Chilean Government is stated to have revived interest in the U.S.A. in the activities of the Corporación de Fomento de la Producción (Production Development Corporation), which during recent months has been steadily increasing purchases in furtherance of the long-term industrial programme of Chile. It is believed that the Corporación may supervise the buying of equipment for the tramways, provided Congress gives its approval.

In a recent press interview, a representative of the Corporación stated that Chile was engaged on the most advanced programme of any Latin-American country for the development of its resources of copper, steel, nitrate, coal, cement and petroleum, and in respect of electrification and transport. The spokesman expressed the opinion that the programme deserved the careful consideration of the other countries as a pattern for the solution of post-war problems, but pointed out that the co-operation of other nations, particularly the U.S.A., was necessary to its success. The chief problem of Chile always had been the lack of international purchasing power, due to the fact that its principal exportable surplus was in copper and nitrate, both of which had been subject to the vicissitudes of world markets. It was for that reason that Chile was aiming at the development of its natural resources.

FRANCE

National Railways Position

In the first nine months of 1943, the weekly average of passenger receipts of the Société Nationale des Chemins de fer Français (S.N.C.F.) has been increasing. Although the record of fr. 280,000,000 was reached in August largely because of holiday traffic, the weekly average for the whole of the nine-month period was fr. 222,000,000. There was a further decrease in goods traffic during the same period; the daily average

of full wagon loadings was some 22,000, compared with some 25,000 for the whole of 1942 and some 37,000 for the whole of 1938.

It should be taken into consideration that the average load of a wagon is 13 metric tons at present, compared with 9 tons in previous years. Due to the various increases in rates, goods receipts did not reflect the decrease mentioned, and the previous weekly average of fr. 180,000,000 increased slightly to fr.195,000,000 for the period under review. The tendency, however, has been for receipts to fall, for in May, 1943, the weekly average was fr. 216,000,000.

As the S.N.C.F. is precluded at present from adding to its locomotive and rolling stock, activities in this connection are limited to the evolution of new types of locomotives and vehicles for the time when hostilities shall have ceased. New types of powerful goods locomotives are reported to figure prominently in the programme. A number of Pacific locomotives have been modernised and fitted with mechanical stokers; these engines are now working on the heavily graded Laroche-Migennes-Lyons section of the Paris-Marseilles line.

To prevent the capacity of the S.N.C.F. being further decreased, the company has been included among those concerns which are exempt from detailing labour for Germany; even so, by the end of 1943, wagon space was restricted, in general, to foodstuffs and priority industrial commodities.

CEYLON

Railway Staff Matters

The Minister of Communications & Works has formulated proposals for providing better chances of promotion in the Railway Clerical Service by increasing the number of posts in the higher grades. It is recommended that the permanent establishment of the service should comprise, apart from fourteen special appointments, 160 members of class I, 771 of class II, and 664 of class III. The recommendations are subject to the proviso that every alternative vacancy occurring in class I be abolished, if traffic conditions permit, to prevent the existence of redundant posts after the war.

A Chief Investigating Officer is to be appointed to control a department of the Government Railway to be formed for dealing with prosecutions instituted by the administration, the settlement of claims against the railway for loss of, or damage to, goods, and so on, and with certain other matters. Qualifications for the post of Chief Investigating Officer, which is to be advertised, are to include a knowledge of law and of railway traffic and operating work. The officer selected will be assisted by several Investigating Officers, of whom two have been appointed already from the Railway Clerical Service.

Anglo-Argentine Railways Reply to Unions' Claims

State system would show deficit if operated on similar basis

(*From our own correspondent*)

Buenos Aires, April 25

THE local boards of the private railway companies in Argentina on April 19 presented to the Secretariat of the President of the Republic a 10,000-word document refuting a petition lodged by the railway unions on March 20.

Answering the workmen's accusation that the companies amass the wealth of the country for their own benefit and are making usurious profits, the document recalls that with one exception the railway companies are in a state of moratorium as regards their debenture stocks, and that only an insignificant part of their capital earns any return. The irresponsible accusation made by the unions, if substantiated, would mean that the companies are falsifying their balance sheets and defrauding the State of payment of the Mitre Law tax, as well as the great majority of their shareholders, who have not received a dividend for almost fifteen years.

In answer to the argument (on which the foregoing contention was based) that the State railways show an annual surplus of 20,000,000 pesos in gross receipts over working expenses, the companies stress that if the service of the loans raised by the National Government for construction, equipment and renewals, had to be met, the Argentine State Railways would show a deficit. Private railway companies have to meet the cost of renewals, and debenture interest from surpluses which are insufficient for that purpose. Any measure which disturbs the balance between receipts and working expenses would be bound to have an immediate repercussion in the general situation. The companies' tariffs are the only resources they have for meeting expenses, making provision for renewals, and debenture interest, and the 1·72 per cent. return on the capital invested in 1942-43 leaves no margin for meeting the wage increases now requested by the unions, which are estimated to involve a cost of 32,000,000 pesos a year.

In respect of the claim for the return of 26,000,000 pesos for salary retentions under the 1934 Presidential Award, the companies recall that the system was established to prevent staff dismissals. The companies and the representatives of the workmen freely submitted their differences to the President of the Republic, and agreed to abide by his decision fixing retentions; consequently the workmen cannot now speak of "tolerating" the arrangement, especially as the Chairman of the Railway Union stressed the spirit in which the workmen had accepted the Presidential Award, at meetings held under the auspices of the National Railway Board last year. The companies have complied strictly with the provisions of the award, and have not distributed any dividends without first reimbursing fully the retentions laid down for each financial year. Until the suppression of the retentions in April, 1942, the companies had returned 42,000,000 pesos. In reply to the workmen's contention that reimbursement of the retentions should be made on a cumulative basis and not (as maintained by the companies) on an annual basis and restricted to the results of each financial year, the document issued by the railway companies stresses that interpretations by the national executive power and the Ministry of Public Works, and also decisions of the law courts support the companies' view, and that therefore "wrongful appropriation" of funds is non-existent.

The document makes the point that should the sum claimed be returned, the companies state that the situation which led to the award (and which is still in force) would arise again. As to the workmen's argument that any surplus arising from the tariff increases authorised in March, 1942, to suppress retentions and meet the companies' contributions to the pension fund, should be used for the return of 26,000,000 pesos, the document stresses that this is in contradiction to statements made by the Minister of Public Works, Señor Salvador Oria, in the Chamber of Deputies in 1942, during discussions on the Pension Law modifications. Señor Oria stated that any such surplus belonged to the companies, and this was confirmed in the terms of the Decree of the Executive Power of December 11, 1943, which authorised an increase in cattle tariffs. The companies also point out that the National Supreme Court ruled that tariffs were the property of the railway companies.

As to the problem of salaries and wages, it is stated that 75 per cent. of the staff of the private railway companies receive yearly and two-yearly increases, in accordance with scales established under collective contracts which are reputed to be the most perfect which have been drawn up in Argentina. Although the average yearly salary of industrial workers is 1,340 pesos, men employed in the railway workshops of the private railway companies earn 2,351 pesos. Furthermore, the railway workers enjoy practical advantages, such as sickness subsidy, which improve their standard of life. The companies also state that family allowances defrayed by tariff surcharges will benefit at least 45,000 employees.

Under the heading of working results and rising costs, a comparison is made between gross receipts in 1938-39 and those in 1942-43, and showing the increases of the latter over the former. In 1942-43 gross receipts were 465,994,065 pesos, an increase of 63,351,654 pesos, or 15·7 per cent. Direct working expenses, excluding renewals effected, were 386,117,670 pesos, an increase of 57,186,593 pesos, or 17·4 per cent.

Analysing direct working expenses and bearing in mind the influences of the exchange rate on purchases abroad, it is stated that fuel represents 86,000,000 pesos, an increase of 43,000,000, or 100 per cent. Salaries have risen by over 12,000,000 pesos, which sum, added to the increase of 43,000,000 pesos for the cost of fuel, totals 55,000,000 pesos.

Deducting from gross receipts direct working expenses and 2,436,230 in respect of the 3 per cent. Mitre Law single tax, the net figure of 77,440,165 pesos remains. With this amount the companies have to cover the difference needed to complete renewals reserves, established by law, and totalling 34,600,000 pesos, and the payment of debenture interest in gold pesos of 29,200,413, which at par totals £5,796,003, and at the special rate (established for railways financial remittances) of 16 pesos to the £, 92,736,528 pesos is needed. That is to say, that adding the deficit on renewals account and the payment of debentures, a figure is arrived at of 127,000,000 pesos, which the railway companies can meet only with 77,500,000 pesos. Therefore the financial year 1942-43 shows a deficit of 49,500,000 pesos.

L.M.S.R. Locomotive Casualty Report System—III*

Methods used for the reporting of, and dealing with, failures of engines

By Harold Rudgard, A.M.I.Mech.E., M.I.Loco.E., M.Inst.T., Superintendent of Motive Power, L.M.S.R.

Category II

SUCH cases are not to be reported on casualty report per E.R.O.47987 but must be shown on the weekly statement E.R.O.53921 of the District to which the engine is allocated. In cases where the engine fails away from the home station due to heated axle, big and little end bearings (where time has not been lost), the non-debitable casualty report form E.R.O.53920 must be made out by the District where the engine is stopped, giving full particulars of the result of examination, and the apparent cause. On the next page is a specimen copy of the non-debitable engine casualty report.

One copy of this form must be forwarded within three days to the Divisional Superintendent of Operation to whom the engine is allocated, and one copy to the District to which the engine is allocated. If it is not possible to make the examination within three days a report must be sent, but the words "particulars to follow" inserted, and as soon as examination is made the results should be sent in letter form to the Divisional Superintendent of Operation, and the District Locomotive Superintendent to whom the engine is allocated, but it must be strongly emphasised that every effort must be made to carry out examination of heated bearings as soon as possible.

The District Locomotive Superintendent to whom the engine is allocated, after receiving the report, will make full investigations, and deal with the case, recording it on the weekly casualty statement E.R.O.53921, giving briefly the result of his inquiry and action taken, and also details of the oil supplied.

In cases where an engine is unable to return to the owning Depot on a booked train, a non-debitable casualty form E.R.O.53920, must be made out by the District Locomotive Superintendent where the failure occurred, giving full particulars of the nature and cause of the casualty. One copy must be sent within 24 hours to the appropriate Divisional Superintendent of Operation and one copy to the District Locomotive Superintendent to whom the engine is allocated, who must fully investigate and deal with the case, recording his conclusion and action taken on the weekly casualty statement.

Category III

All cases of loss of time due to any of the following causes, must be recorded on the back of the weekly casualty statement, E.R.O.53921, by the District where the driver belongs. The driver's reports should not be sent to Divisional Superintendent of Operation unless specially asked for.

Mismanagement
Shortage of water
Overloading
Weather conditions
Slipping
Shortage of coal

In cases where the driver books off at a foreign shed, the District Locomotive Superintendent should forward the driver's report form to the District where the driver is stationed, and insert any remarks he may wish to make at the foot of the report.

Priming

Cases of boiler priming are to be reported on the back of weekly casualty statement, E.R.O.53921, by the District where the engine is allocated. In cases where the driver books off at a foreign station, the driver's report form must be suitably endorsed with brief details as to the condition of water and any points relevant to the case, and sent to the District Locomotive Superintendent to whom the engine is allocated.

Inferior Coal

Category IV

When it is considered that time has been lost because of inferior quality of coal, a coal report form, E.R.O.23299, must be initiated, but it is essential that the District Locomotive Superintendent shall satisfy himself that the quality of the coal is responsible for the delay. When an engine has taken coal at a mechanical coaling plant the particulars of coal in the plant at the time the engine took coal and this, of course, may be a mixture of coal from more than one colliery.

A copy of this form should be sent to:—

(1) Divisional Superintendent of Operation.
(2) District Locomotive Superintendent where engine is allocated.
(3) District Locomotive Superintendent where engine last coaled.
(4) District Locomotive Superintendent where men are stationed.
(5) Coal Office, Derby (English Divisions).
(6) Coal Office, Glasgow (Northern Division).

These cases are to be recorded on the back of weekly casualty statement of the District where engine is allocated.

Below is a specimen copy of the coal report.

Category V

Cases of steam heating irregularities should be reported on the back of the

L M S

Motive Power Depot_____ Date_____ 19____

COAL REPORT Classification_____

Shed_____ Engine No._____ Class_____ Date_____ 19____

Driver_____ Fireman_____ Stationed at_____

Train_____ m. From_____ To_____ Grade of coal reqd._____

Delay_____ hrs._____ mts. At_____ and_____ Load (Regulation_____
between (Actual_____

Length of time engine had been in traffic prior to delay occuring_____ hrs._____ mts.

If fire cleaned during this period, state approximate time_____ m.

PARTICULARS OF COAL

Shed supplied at	Colliery and Pit	Grade	Quantity Supplied Tons Cwts.	Wagon Numbers	Date Invoiced from Colliery

1. Coal considered to be responsible for delay_____
2. If delay attributed to stack coal, give particulars of coal comprising stack and date put to stack_____
3. Has any difficulty been experienced with this grade of coal recently—If so give particulars._____
4. Was engine supplied with sufficient broken firebrick or limestone?_____
5. Date tubes were last cleaned_____ 6. Date brickarch and Tube Plate last cleaned down_____ 7. Date coal last thrown forward on tender_____
8. Had engine been reported on any of the six previous trips with regard to steaming? By whom_____ Date_____
9. Driver's report:—_____
10. District Superintendent's or Running Shed Foreman's report on the composition of clinkers produced; whether there is evidence of firebrick or limestone having been used; condition of tubeplate; and conclusion as to cause of delay_____

District Locomotive Superintendent.

DIVISIONAL SUPERINTENDENT OF OPERATION,
MOTIVE POWER SECTION.

Specimen copy of the coal report form

* Part I was published in our April 21 issue and Part II in our April 28 issue

L M S SHED_____ DATE_____

NON DEBITABLE ENGINE CASUALTY REPORT

Your Engine_____ Class_____

failed after working_____

on_____through the following defects :—

Cause and particulars of investigation :—

Remarks :—

(Signed)_____

Dist. Loco. Supt. District Loco. Superintendent.

Non-debitable engine casualty report form

weekly casualty statement, E.R.O.53921, of the District to which the engine is allocated irrespective of whether time has been lost or not. In cases where the driver books off at a foreign station, the driver's report form must be suitably endorsed with points under item number 16 (in notes for guidance in dealing with certain engine casualties) and sent to the District Locomotive Superintendent to whom the engine is allocated.

Instructions are also carefully laid down as regards the detailed information required in connection with each classification of engine casualties.

Prevention of Casualties

The weekly engine casualty statement E.R.O. 53921 reveals whether casualties are occurring with a particular type of engine or train, or if any part of the locomotive is causing outstanding trouble, for example, tubes, element joints, etc.

District Locomotive Superintendents send in with the weekly statement a personal note giving his observation and what action he is taking with a view to reducing the number of casualties, also suggestions he may have to offer with regard to modification in design, alteration of standard examinations, and so forth.

No alteration in the design of any detail of an engine or tender is made without having first received the approval of the Chief Mechanical Engineer.

(*Concluded*)

A Composite Timber and Concrete Railway Sleeper

One of the advantages claimed for these units is that the resilience of timber is retained

A COMPOSITE timber and concrete sleeper of simple design has been evolved to meet requirements for wartime purposes and which could be adopted also for post-war needs should the shortage of timber continue. Its chief merit lies in doubling the use of existing supplies of timber and halving future requirements of this material.

The following advantages may be enumerated: The resilience of timber is retained; centre binding is eliminated; an adequate tie is ensured; the tilting of blocks is eliminated and better gauge is maintained.

As the timber is only 2½ in. thick and the underside is clear of the ballast, decay is reduced and longer life ensured; also a better penetration of creosote is assured.

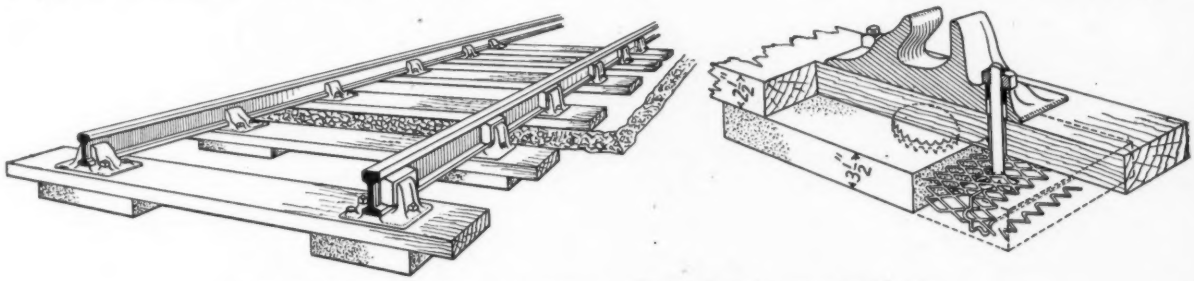
A minimum amount of reinforcement is required, and the cost is considerably less than that of a reinforced-concrete sleeper.

Moreover, the construction of the sleepers is designed to overcome the objections of signal engineers to steel or reinforced-concrete sleepers in connection with track circuits.

The retention of a normal sleeper top is useful to shunters and other track users as it provides a normal and safe footway as compared with concrete blocks strapped at intervals to retain gauge.

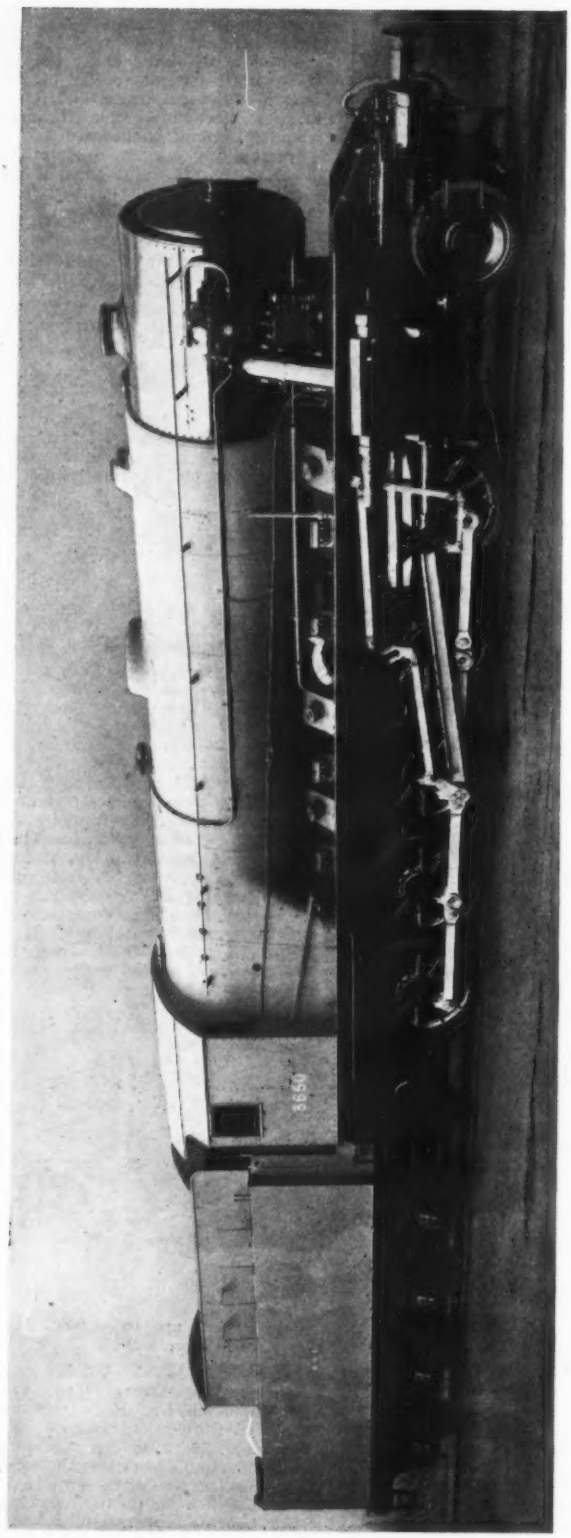
The general description of the composite sleeper, as may be seen from the accompanying illustration, is as follows: two concrete blocks or pads reinforced with expanded metal, two rag bolts and an "alligator" in each block to ensure adequate grip and reduce pressure on rag bolts, thereby saving a bolt; a timber 7 ft. 6 in. by 10 in. by 2½ in. The blocks, timber, and chairs can be assembled in depot and delivered on site complete, thereby saving labour on site.

The weight of the composite sleepers, which are manufactured by C. H. Chaston & Co. Ltd., is 267 lb., compared with 192·4 lb. for a normal timber sleeper with chairs, and up to 1,000 lb. for a reinforced-concrete sleeper.



General arrangement and constructional details of composite sleeper

ARGENTINE-BOLIVIAN RAIL LINK.—An Argentine-Bolivian Railway Commission was constituted in Buenos Ayres on November 22, 1943, for the purpose of controlling and supervising the construction of the first section of the projected railway from Yacuiba (on the Bolivian border) to Santa Cruz de la Sierra and Sucre, Bolivia. The portion of the railway linking Yacuiba with Villa Montes is to be built by Argentina at an estimated expenditure of 12,200,200 Argentine pesos.



General view of locomotive in standard service finish

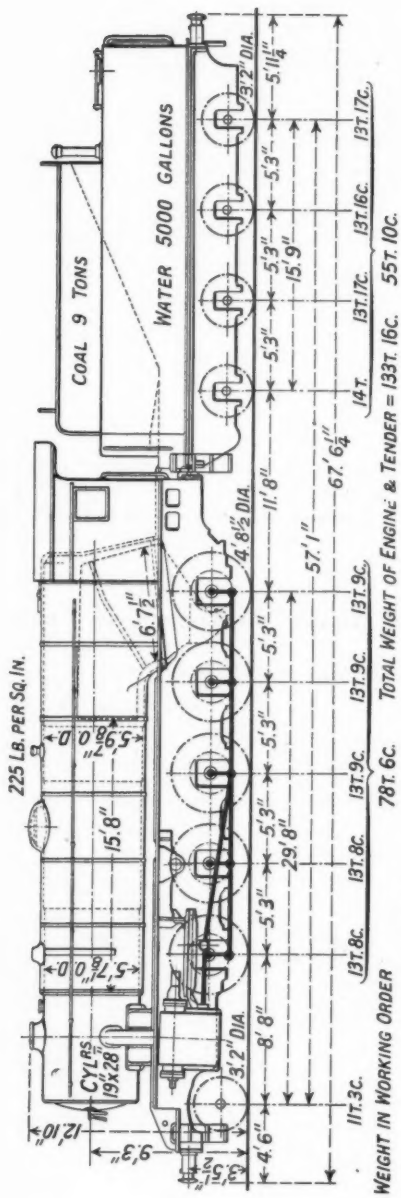


Diagram giving principal dimensions and axle loads of the 2-10-0 austerity locomotive

BRITISH-BUILT AUSTERITY 2-10-0 LOCOMOTIVE

British-Built Austerity 2-10-0 Locomotive

Very low axle loadings are a feature of the latest austerity design

FULL details are now available of one of the most interesting and important locomotive designs of recent years, namely, the 2-10-0 type tender locomotive which has been built by the North British Locomotive Co. Ltd. for the Ministry of Supply. A number of locomotives of this design is now at work on heavy freight trains on various main lines in this country, where their performance will be watched with interest. The general style of the locomotive is that of the 2-8-0 austerity type, enlarged considerably, but retaining all the simplicity and robustness of the earlier eight-coupled engine.

There have been only two precedents for the use of ten-coupled wheels in this country —the famous Decapod 0-10-0 tank locomotive built at the Stratford Works of the Great Eastern Railway in 1902, and the Derby-built 0-10-0 Lickey Incline banking locomotive which appeared on the Midland Railway in 1920. Remembering the regrettable fate of the former engine, which fulfilled all requirements except that of lightness on the permanent way, it is interesting to note the extremely low axle loadings (as compared with the Decapod) of the new design. An ample boiler, with a most generous steam space is provided, and the firebox is equipped with three arch tubes which are something of a novelty in British practice. For all their size and power, these new engines are remarkably light, and should be able to work over most main lines, both in this country and on standard-gauge railways abroad, if their duties should take them there.

Main Particulars

There are two outside cylinders driving the third pair of coupled wheels, and Walschaerts motion is employed for actuating piston valves working above the cylinders; these valves are arranged for inside admission. The hand-screw reversing gear is arranged for left-hand drive. Below are given some dimensions and weights :—

Cylinders (2), dia.	19 in.
Piston stroke	28 in.
Piston valves, dia.	10 in.
Piston valves, max. travel	6⅛ in.
Wheels, coupled, dia.	4 ft. 8½ in.
Wheels, leading truck, dia.	3 ft. 2 in.
Wheelbase, coupled	21 ft. 0 in.
Wheelbase, total	29 ft. 8 in.
Boiler heating surface—	
Large tubes	589 sq. ft.
Small tubes	1,170 sq. ft.
Firebox, including arch tubes	192 sq. ft.
Total evaporative	1,951 sq. ft.
Superheater surface	423 sq. ft.
Combined total	2,374 sq. ft.
Grate area	40 sq. ft.
Boiler pressure	225 lb. per sq. in.
Tractive force (85 per cent. b.p.)	34,215 lb.
Adhesive weight	67½ tons
Weight of engine in working order	78½ tons
Weight of tender in working order	55½ tons
Total weight of engine and tender	134 tons

The tender has eight wheels; it has a self-trimming coal bunker of 9 tons capacity. The water tank, which is of welded construction, has a capacity of 5,000 gal.

Economy Features

Though the new engine is intended to meet main-line operating requirements and will handle 1,000-ton trains at a speed of 40 m.p.h. or thereabouts, every opportunity has been taken to make the design an economical one from the manufacturing point of view. To minimise the requirement for labour all parts have been kept as simple as possible. Here and there some slight elaboration has been deemed desirable to make the engine accessible for cleaning and overhaul, but generally only the most straightforward principles of construction have been employed. Fabrication has been the method used in the construction of many components that would normally be made from steel castings and forgings. This process is not necessarily economical in labour; the reason for its adoption is to limit the demand for steel castings and forgings, manufacturing facilities for which were already fully engaged in meeting other wartime requirements. Certain steels and non-ferrous materials are in short supply; their use in the new locomotives has been restricted to the minimum.

As an illustration of simplicity in design leading to economies in labour the boiler makes a good example; the round-topped firebox and the parallel barrel make it a particularly straightforward type for quantity production. Its clothing consists of steel plates carried on crinolines, insulation being provided by asbestos mattresses on the boiler barrel and firebox and plastic magnesia on the throat plate.

Interesting instances of the elimination of steel castings and forgings by the use of fabricated parts are found all over the engine, but four examples must suffice. The axlebox guides, which would normally be cast, are made from flanged plate reinforced by triangular ribs. Brake-hanger and spring-link brackets are made from strip material; a bent piece and a straight piece are welded together to form a single bracket of the type that is usually forged. The reversing rod is tubular with the ends welded on and the reverse shaft is likewise a tube with forged ends and levers welded in place.

Cast iron is used in the normal way for the cylinders, for the blast pipe, which is in one piece, and for the smokebox saddle which has the exhaust passages formed in it. The front end cylinder covers are of cast iron and so is the chimney. Cast iron has been used to replace steel in the manufacture of certain of the wheels. The centres of those on the first two-coupled axles and on the last two coupled axles are of high-duty cast iron; the main driving wheel centres are of steel castings; the leading truck wheels and the tender wheels are rolled with tyres in one piece but there is an ample rim section so that they can be re-turned after wear has taken place.

The steel and iron centres of the coupled wheels are made from similar patterns and are pressed on to their axles. Rather less pressure, about 6 instead of 10 tons per inch of axle diameter, is used to press on the iron centres. Balance weights are cast integral with the centres and no allowance is made for reciprocating parts. The rear cover castings for the cylinders are of steel, as these are required to support the front ends of the cross-head slide bars.

No compensating levers are provided in the locomotive springing, nor is there any provision for adjustment after assembly. The tender springing is compensated so that it will run satisfactorily, notwithstanding its relatively light axle loading, over a track not in the best of condition.

The two-wheel truck at the front end of the engine is of the three-pin swing link variety; it enables the locomotive to negotiate curves with a radius down to 6 chains and 4½ chains at slow speeds.

The Valve Gear

Plain bearings are used throughout in the valve operating mechanism; the bushes are made of cast iron. The valves are provided with a steam lap of 1¼ in., and an exhaust clearance of $\frac{1}{16}$ in. In full forward gear there is a clearance of 1⅛ in. at the bottom of the link and the slip of the die is ¾ in. In backward gear the clearance at the top of the link is 1$\frac{3}{16}$ in., and the slip of the dies is 1⅛ in. Tables are given herewith showing the valve events in forward and backward gear.

Equipment and Materials

Particulars relating to the material used in certain parts of the locomotive are given in the following table :—

Description	Material	Tensile strength tons per sq. in.	Test specification
Boiler shell plates	Steel	25—30	BSS. 24—16
Inner firebox	Colville's "double crown" brand firebox steel	23—28	—
Waterspace stays (rigid and flexible)	Colville's O.H. steel	28—32	BSS. 24—8
Roof stays (rigid and flexible)	Steel	26—32	BSS. 24—8
Boiler and arch tubes	Steel	20—26	BSS. 494
Flue tubes	Steel	20—28	BSS. 512
Axles	Steel	35—40	BSS. 24—2
Tyres (coupled)	Steel	56—62	BSS. 24—4D
Connecting rods, Coupling rods, Crank pins, Eccentric cranks, Drawhooks, Screw couplings	Forged steel	32—38	BSS. 24—8C
Piston rods, slide bars, reversing screw	Forged steel	40—45	BSS. 24—8D
Laminated springs	Steel	—	BSS. 24—6b
Coupled wheel centres (except main driving)	High duty cast iron	—	BSS. 786
Main driving wheel centres	Cast steel	26 min.	BSS. 24—10
Tender wheels, Leading truck wheels	Steel, solid forged and rolled	—	BSS. 468

Though generally of a special and economical design the locomotive is provided with a certain amount of standard equipment where this has been felt desirable or where the parts were readily available. Thus the boiler is provided with a superheater by the Superheater Co. Ltd., and the cylinders are equipped for high temperature steam with cast-iron packings supplied by the United States Metallic Packing Co. Ltd. Boiler fittings include two pop safety valves by David Auld & Son, two water gauges by W. N. Baines & Company, boiler and steam brake pressure gauges by Smith Bros. (Hyson) Limited, and two No. 11 injectors with No. 10 cones by Davis & Metcalfe Limited. The latter are fitted under the footplate. Both are of the right-

VALVE EVENTS

Exhaust Clearance = $\frac{1}{16}$ in.

Lap of Valves = $1\frac{1}{4}$ in.

FORWARD GEAR

Notch		Travel	Lead		Port opening			Cut off per cent.			Release per cent.			Angle of release			Compression			Exhaust travel		
Per cent. Cut off	Angle	Inches	F.P.	B.P.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.
			In.	In.	In.	In.	In.													In.	In.	In.
Full	19½	6⅜	⅛	⅛	⅛	⅛	—	77	73½	3½	92	91½	1½	145	147	2	92	93	1	3 7/16	3 7/16	⅛
70	18	6 1/16	⅛	⅛	⅛	⅛	—	73	69½	3½	91	89½	1½	143	143½	1½	90½	91½	1	3 7/16	3	⅛
60	14	5⅛	⅛	⅛	⅛	⅛	—	64½	60	4½	87	85½	1½	136	137	1½	87	88½	1½	2⅜	2⅜	⅛
50	10½	4⅝	⅛	⅛	⅛	⅛	1/16	52	50	2	82½	80½	2	128	129½	1½	82	84½	2½	2⅜	2⅜	⅛
40	8	4 1/16	⅛	⅛	⅛	⅛	1/16	42	41½	1	79	76½	2½	122	124	2	77½	80½	3	2 7/16	2 7/16	⅛
30	6	3⅜	⅛	⅛	⅛	⅛	0	30½	30½	0	72½	70	2½	113	115	2	73	75	2½	2 7/16	2 7/16	⅛
20	3½	3⅛	⅛	⅛	⅛	⅛	0	21	19	2	65	63½	1½	104½	108½	4	66	67½	1½	1⅜	1⅜	⅛
10	1	3 1/16	⅛	⅛	⅛	⅛	0	10	9	1	54	54	0	91	97	6	56½	57½	1	1⅜	1⅜	⅛
Mid	0	3 1/16	⅛(f)	⅛(b)	⅛(f)	⅛(b)	0	8½	6½	2	50½	50	½	87	93	6	52½	52½	0	1⅜	1⅜	⅛

BACKWARD GEAR

Notch		Travel	Lead		Port opening			Cut off per cent.			Release per cent.			Angle of release			Compression			Exhaust travel		
Per cent. Cut off	Angle	Inches	F.P.	B.P.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.	F.P.	B.P.	D.
			In.	In.	In.	In.	In.													In.	In.	In.
Full	20	6 7/16	⅛	⅛	⅛	⅛	—	80	71	9	98½	89½	9	150½	156	5½	90	94	4	3 7/16	3 7/16	⅛
70	17½	5 13/16	⅛	⅛	⅛(b)	⅛	—	75	68	7	92	87	5	146	151	5	88½	93	4½	2 15/16	3	⅛
60	14½	5 1/16	⅛	⅛	⅛	1/16	1/16	65	60	5	89	84	5	140	144	4	86	90½	4½	2⅜	2⅜	⅛
50	10½	4⅜	⅛	⅛	⅛	⅛	1/16	52	49½	2½	84	80	4	131	130	4	81½	85	3½	2 7/16	2 7/16	⅛
40	8½	4 1/16	⅛	⅛	⅛	⅛	1/16	40½	40	1	79	76	3	124	124½	3	78	81	3½	2 7/16	2 7/16	⅛
30	6½	3 13/16	⅛	⅛	⅛	⅛	1/16	31½	31	1	74	71½	2½	116	119	3	73½	77	3½	2 7/16	2 7/16	⅛
20	4½	3 7/16	⅛	⅛	⅛	⅛	1/16	21	20½	1	66	65	1	106	111	5	67½	69	1½	1⅜	1⅜	⅛
10	1½	3 1/16	⅛	⅛	⅛	⅛	1/16	11	9	2	54½	54	½	92½	98	5½	57½	57	1	1⅜	1⅜	⅛
Mid	0	3 1/16	⅛(f)	⅛(b)	⅛(f)	⅛(b)	0	7½	7	1	49	49	0	86	93	7	52½	52	1	1⅜	1⅜	⅛

hand pattern and therefore interchangeable. They are connected to two top-feed valves which are mounted on the boiler between the dome and the chimney. Cylinder lubrication is by means of a Detroit sight feed lubricator fitted in the cab; this is by the Vacuum Oil Co. Ltd.

Steam braking is provided on the engine and tender; equipment is provided for both vacuum and pressure braking on trains. Vacuum brake equipment is supplied by the Vacuum Brake Co. Ltd., and pressure brake equipment by the Westinghouse Brake & Signal Co. Ltd. The Westinghouse brake pump, which is of the K.L.2A type, is mounted in an accessible position on the side of the smokebox. The air reservoirs are fitted out of sight between the frames. A special steam-brake valve by Gresham & Craven Limited provides manual or automatic application of the locomotive brake. Automatic application takes place when the train brakes are applied and is proportional to the strength of the train braking whether this be by vacuum or compressed air. The buffers on engine and tender are supplied by G. Turton Platts & Co. Ltd.

The materials listed in the accompanying table are of the most widely available kind and among the numerous suppliers may be mentioned Colvilles Limited for boiler shell plates, inner firebox plates and steel stays, Steel, Peech & Tozer Limited, for axles, tyres, and laminated springs, Taylor Bros. Ltd. for axles and rolled steel wheels, Stanton Iron Works Limited, and Coltness Iron Co. Ltd., for wheel centres, and Glenboig Union Fireclay Co. Ltd. for refractory material. Forged steel parts are made by Scottish Stamping & Engineering Co., Ltd., Dudley Drop Forgings Limited, Metropolitan-Cammell Carriage & Wagon Co. Ltd., Armstrong Stevens & Sons, P. & W. MacLellan Limited, among others.

A point of interest to operators of the new locomotives is their ready adaptability to altered conditions. The boiler can be converted for oil burning without removal from the engine; it is necessary only to add a false bottom in the ashpan and fit front oil burners. The slides normally occupied by the two halves of the firedoor serve to hold in position a firehole blanking plate which is provided with a firedoor having a small opening for furnace observation. The tender is as readily adaptable as the engine; it can, moreover, be provided with a water scoop. The narrow bunker shown in the illustrations gives excellent visibility when the engine is running tender first, and it leaves a convenient ledge on which to accommodate fire tools. Bolt holes are provided in front of the engine to facilitate fitment of a cowcatcher for service overseas.

ARGENTINE RAILWAY EMPLOYEES' WELFARE SCHEME.—An Argentine Government Decree issued recently provides for the compulsory contribution by the State Railways Administration and by its employees to a welfare scheme for the latter. It is stated that the contributions are to be payable as from January 1 last; they are at the rate of one peso for each employee a month on the part of the Administration, and on a scale of from one to five pesos a month for employees. It is understood that proportional contributions will be required of other railways the personnel of which also will benefit from the scheme. Another Decree provides for a subsidy by the State of 1,000,000 pesos for the construction of a hospital in Buenos Aires for railway staff.

A One-Aspect Signal System

Some sections of elevated line in Chicago adopted a signal system in which the signals were fixed aspects

MANY of the elevated lines in American cities were operated for a long period on the tramway principle without any signals at all, but in course of time various forms of signalling were installed. One of these, Black's mechanical automatic block system, was referred to in an editorial note in our January 22, 1943, issue. Some of the earliest examples of track-circuit working on electrified railways were to be found on the Boston elevated lines and served as a model for the work put in on the District Railway in London concurrently with electrification. On most of the elevated lines signals were at first applied only at curves, where the view was obstructed, but later some routes were fitted throughout. On others the running continued to be made on sight on straight sections. On the West Side Elevated in Chicago, the then Superintendent, Mr. M. J. Feron, and Engineer, Mr. B. J. Fallon, sought to obtain a means of spacing trains apart without the expense of a complete automatic-signal system and some 35 years ago the arrangement described below was installed on a large mileage and proved very successful in the special conditions obtaining on the line. It is believed to be still in use. It certainly was until quite recent years, according to some published statements.

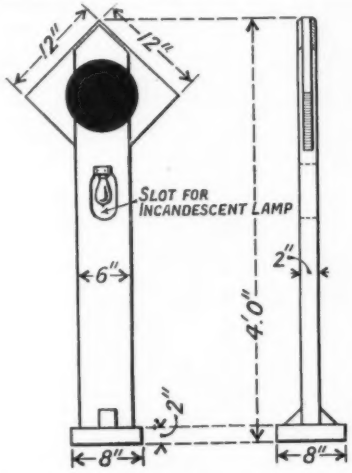


Fig. 1—One-aspect signal board used on parts of Chicago Elevated Railways

The peculiarity of the arrangement is that only one signal aspect is used, and that the presence of the train, instead of acting on track circuiting or some treadle device, merely serves to obstruct the view of a signal for a certain distance from the motorman of a following train, who always stands in the same position on the leading vehicle of any train. There is only one very simple operating rule, namely, that no signal may be passed, except to proceed cautiously to the assistance of a disabled train, unless the next signal in advance is also at that instant visible.

The signals are merely signboards, as shown in Fig. 1, formed of a diagonally-placed white board with black disc in the centre mounted on a short post; an ordinary electric light bulb is placed below the board. They are placed in the 6 ft. way (actually a little over 7 ft. in this instance) as shown in Fig. 2 and serve for both directions of running. The running is right-hand and the motorman stands on the right of the car. It will be seen that if a train is standing at a signal, say, train 2 at signal B, the motorman cannot see signal C, the next in advance, unless train No. 1 has passed beyond it and until he can see that signal he may not proceed beyond signal B. At night the electric lamps are observed in like manner.

The signal spacing had to be studied carefully to afford maximum freedom of movement. The first in advance of a station was placed about 75 ft. ahead, the next 250 ft. further on, and the next 350 ft., the same spacing, in reverse order, regulating the approach to a station. Thus a train entering on one track makes use of the reverse face of the same signals that serve a train leaving that station on the adjacent track. The block sections are throughout so proportioned that a train can be stopped between any two signals, if running in accordance with the conditions obtaining. Trains are usually following one block section apart in the rush hours. At junctions there are correct interlocking arrangements with signals of the ordinary kind, but between such locations the one-aspect sight-board system controls the traffic; the first signal in rear of an interlocking layout is marked "IN" and the first one in advance thereof lettered "OUT." On four-track sections, where two up and two down lines run parallel, there are three rows of signal boards, suitably numbered, of which only the centre row serves for trains in opposite directions. On curves, where the speed is necessarily restricted, the signals are placed at comparatively short distances.

This peculiar and, as far as is known, unique system was found to be an advantage on occasions when the power supply had to be cut off from a section of route, especially in busy hours when trains would be following closely. On power being restored, trains had to move off in order, so easing the load, instead of several attempting to start at once, as might be the case on the non-signalled elevated sections. It is not contended that so simple a means of carrying out the principle of the block system can be equivalent to track-circuit automatic signals and train stops, but in the hands of reliable men, subject to careful inspection, it was found to fulfil its object very effectively, and the cost of installation and upkeep was very small compared with other equipment.

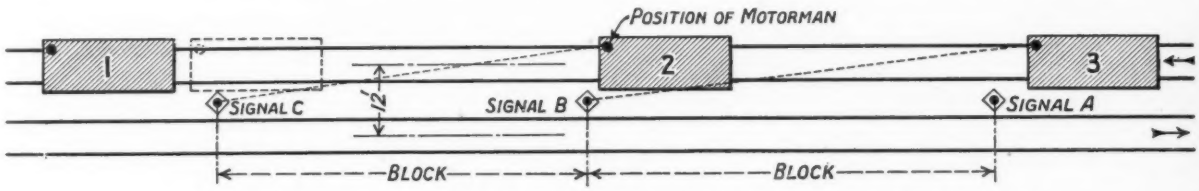


Fig. 2—Diagram illustrating principle of one-aspect signal system (right-hand running)

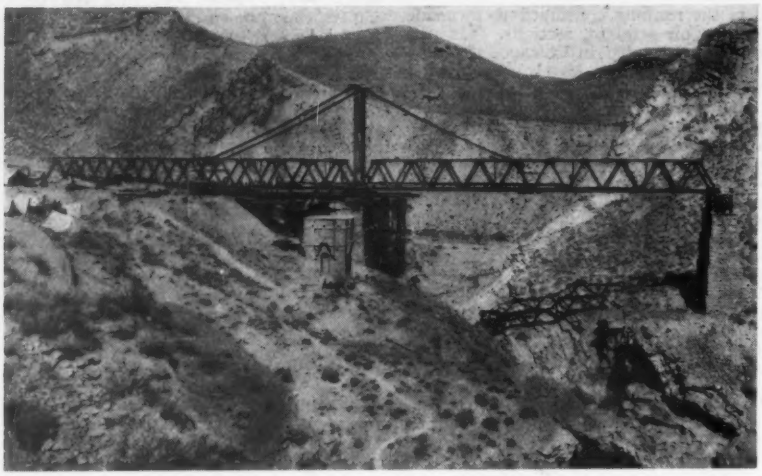
ELECTRIFICATION IN CHILE.—The Chilean State Railways have been working for some time on plans for the electrification of approximately 250 miles of line in the neighbourhood of Santiago. Tenders are stated to have been sought for the equipment of three lines, namely, Santiago-Talca, Santiago - Cartagena, and Santiago - Talagante.

INTEROCEANIC RAILWAY OF MEXICO.—The directors of the Interoceanic Railway of Mexico (Acapulco to Vera Cruz) Limited announce that so far as their information warrants, it is not true that money to be paid under an agreement with the Mexican Government to take over the properties of the company and its two associated companies, Mexican Southern Railway Limited and Mexican Eastern Railway Co. Ltd., has arrived in this country. Not even a preliminary agreement covering such a transaction has been signed. Holders of the securities of the three companies are asked to disregard any statement on the subject not made officially by the Interoceanic Company.

JAPAN PLANNING SUBMARINE TUNNELS.—As a result of the completion of the first, and progress with the second, submarine railway tunnel between Shimonosheki (on the main island of Japan) and Moji (Kyushu Island), two further and much more ambitious submarine tunnel schemes have lately been discussed in the Japanese Parliament. One concerns a railway tunnel between Japan and Korea, which would be about 120 miles long. The final decision as to the building of this is to be taken in the near future, it is stated. The second tunnel envisaged is to connect Dairen (on the Kwantung Leased Territory) with the Shantung Peninsula in Northern China, passing below the Strait of Pechih-li; this would be about 80 miles long. The geological structure of the sea bottom in that region is said to be such as to constitute no difficulties for the realisation of this scheme and preliminary measures in this connection are said to have been taken in hand already by the South Manchuria Railway. These two tunnels would greatly ease the railway connection between China and Japan.

The Withdrawal of a 150-ft. Span

A description of the dismantling of Kachh High Bridge on the Sind-Peshin section of the North Western Railway (India)



The 150-ft. span ready to be drawn back

REFERENCE was made in the September 17, 1943, issue of *The Railway Gazette* to the breach in the Chappar Rift which occurred in July, 1942, and the decision to close the Zardalu—Bostan section of the Sind—Peshin frontier railway in Baluchistan, a branch of the North Western Railway having a number of lofty bridges. The Kachh High Bridge consisted of three 40-ft. deck-type plate-girder spans and one pony-truss Warren girder span of 150 ft. In order counting from Zardalu towards Kachh—the direction of the dismantling of the line—the large span was number three in the bridge. The smaller spans were removed, girder by girder, with a 14-ton steam crane. The large span carried the line across a deep ravine and the rails were 86 ft. above the bed.

The 150-ft. span was of the through type and was fitted with trough decking which, in addition to serving as lateral bracing, was a standard feature on all large spans on the Khandahar State Railway (as the Sind—Peshin line was called in the 'eighties) intended to support road metalling in the event of the bridges being used for road transport, as was often the case at the time of the Harnai road.

The removal of this 150-ft. span presented an engineering problem. Sixty years ago when it was built the erectors used staging in the bed of the ravine and built a bridge of 40-ft. spans on which they constructed the 150-ft. girders. There is this difference between building a railway and pulling it up; in the former efforts are made to build the bridges (at least the foundations and piers) before railhead reaches them and often, if the girderwork is considerable, the construction train crosses the temporary work and railhead is pushed on without delay. In taking up a railway, especially one in a wild region where there are no roads, every girder must be loaded and removed by train before the retreating railhead can proceed. The uprooting of the track must wait when any major work is reached and naturally this interrupts the programme of dismantling the railway as whole.

Proposals to erect staging in the bed of the ravine had to be turned down because of risk of floods and also because of the difficulty of retrieving the staging after the removal of the span. So it was decided to convert the 150-ft. span into a cantilever and to withdraw it without the erection of any staging in the bed of the ravine.

At the Kachh end of the bridge another similar 150-ft. span was erected temporarily on the ground and over the 40-ft. approach span. The 150-ft. ("permanent") span to be withdrawn was jacked up some 7 ft. so that, as it was rolled back, it would clear the formation. (There was a 1 in 44 up grade immediately behind the abutment.) The ends of the "permanent" and temporary 150-ft. girders were joined, and above these junction points two 40-ft. girders (released from one of the other spans of this bridge) were upended as struts. These two plate girders were then securely braced together in the plane at right angles to the centre line of the bridge. These plate-girder struts were fitted with convex base plates resting in concave bearing plates bolted to the junction point between the 150-ft. girders.

These allowed of a certain amount of free movement in the struts parallel to the spans. From the tops of the struts, suspension chains—consisting of mild-steel flat links joined together with 4-in. dia. pins—were stretched to points near the centres of the top chords of both the temporary and "permanent" spans. Stringer girders (removed from the "permanent" span) were threaded through the central panels of the main girders of both spans and were brought up against the angles between the top chords and web members. The chains were attached to these stringer girders, and the two spans, struts, and chains together formed a double cantilever structure 300 ft. long. The weight of the "permanent" span was thus able to be transferred from the far pier to the temporary span. The nose of the "permanent" span had been jacked up 3 in. when the chains were made fast, and it was by jacking it up another few inches and removing the timber packing on which it had rested on the far pier and letting it down again that the "permanent" span became a cantilever. A preponderant kentledge weight of cross girders, etc., had been placed on the back end of the temporary span to hold it down.

The span was withdrawn on rollers, which ran on tracks consisting of pairs of 75-lb. flat-bottom rails. These tracks extended from a little ahead of the pier (for which purpose a certain amount of staging was erected both under the 150-ft. span and the 40-ft. span) to a point 80 ft. behind the rear of the temporary span. Across the 40-ft. span they were carried on a continuous flooring of timbers bolted to the tops of pairs of 40-ft. girders. The rails of each pair were set at 10-in. centres and each track was exactly under the centre line of each main girder. Short lengths of similar tracks were secured at three points under the girders to be rolled back: (1) under the rear panels of the temporary girders, (2) under the junctions between the "permanent" and temporary spans, and (3) under the mid-point panels of the former. At the leading ends of these short lengths of inverted track the rails were bent upwards so that as the spans were drawn back, the rollers entered smoothly between the top and bottom tracks.

Under the central junction points between the spans, 6-in. dia. steel rollers made from discarded wagon axles were used. These were separate rollers spaced as close together as possible without touching, and they spread over lengths of 6 ft. of each track the 100-ton thrust imposed by each strut. At the back of the temporary span where the load was very much less, 4-in. cast-iron rollers were used; these were set in groups of four in cages.

Two 6-ton hand winches were used to pull back the spans with steel wire ropes led through triple-sheave pulley blocks and attached to the ends of the temporary girders. The winches were anchored in the rock and were in a direct line with, and just behind the ends of, the roller tracks.

The rolling back was done most carefully, and any tendency for the spans to wander laterally (and so produce bending in the rollers) was checked by guys attached to the nose of the cantilever. The actual speed of rolling back was 15 ft. 6 in. an hour. The "permanent" span had been lightened by the removal of troughing, cross girders and stringers, but a certain amount of this flooring had been retained on the nearer half, so as to stiffen the long cantilever against the effect of a side wind.

The railway entered a cutting just after leaving the bridge, and it was on this account that the roller track had to be curtailed to 80 ft., giving only just sufficient room for the span to be withdrawn 75 ft. After being rolled back through that distance, the "permanent" span was halfway over the pier and so the necessity for the temporary span and the kentledge no longer existed. At this stage, rollers were inserted under the mid-points of the "permanent" girders and the back half of the temporary span was dismantled. The remainder of the temporary span together with the "permanent" span, struts and "chains" were then rolled back a further 75 ft. and dismantled.

The whole of the dismantling was carried out by the staff of the Bridge Branch of the Engineering Department of the N.W.R.

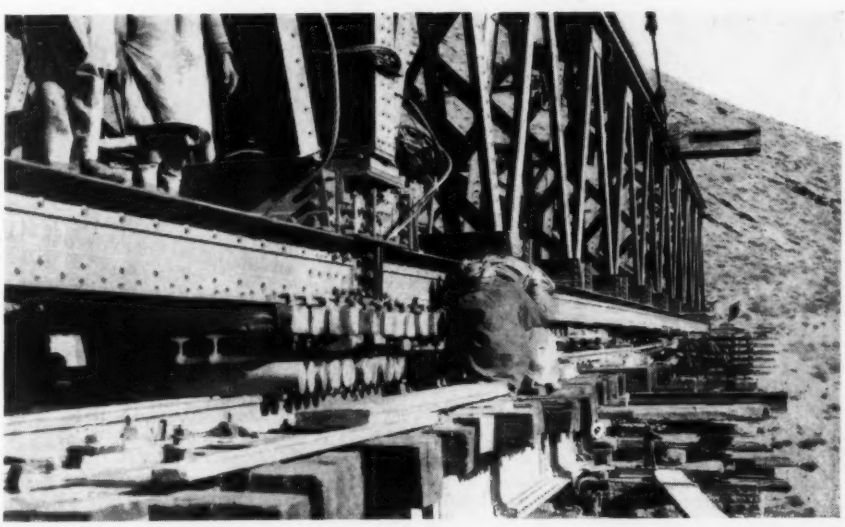
(*See also illustrations on opposite page*)

The Withdrawal of a 150-ft. Span

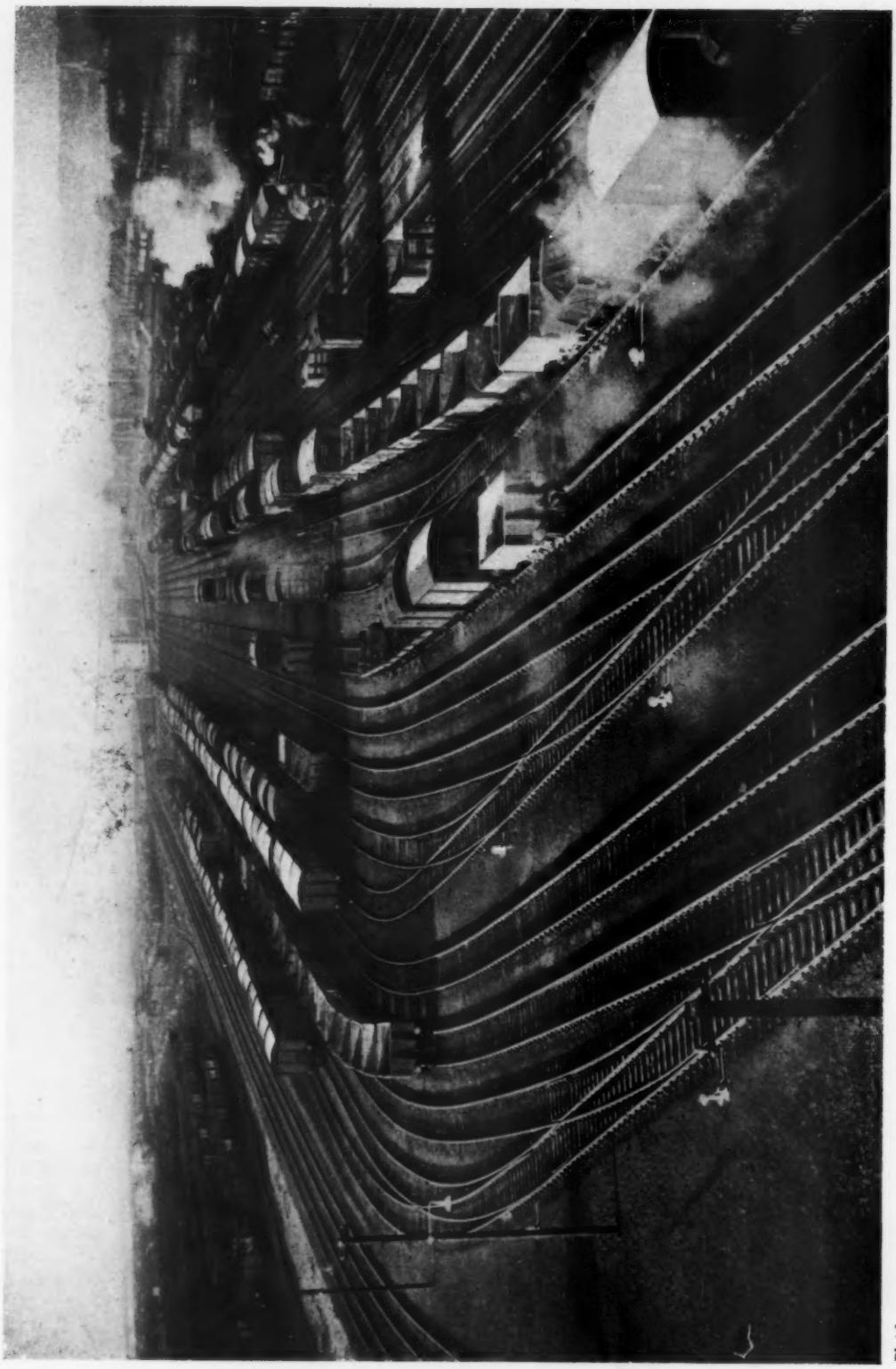
(*See article on opposite page*)

Withdrawal of the 150-ft. span begun : a view looking towards Kachh

The 150-ft. span withdrawn halfway back on to approach on the Kachh side of the ravine



The 6-in. steel rollers and tracks below one of the struts, at the junction between the permanent and temporary spans



[" British Railways in Peace and War"

Photo]

The capacity of many marshalling yards on the British railway system has been considerably increased to deal with wartime traffic. Above is shown a marshalling yard serving an important port

RAILWAY NEWS SECTION

PERSONAL

The directors of the Southern Railway Company announce that Mr. Evelyn Bingham Baring has been co-opted on the board, to fill the vacancy caused by the death of Mr. Robert Holland-Martin.

Mr. R. F. Morkill, M.C., was elected, on April 25, President of the Institution of Railway Signal Engineers. Mr. Morkill, who retired in December, 1941, from the position of Joint Signal Engineer, L.P.T.B., is now on the staff of the Ministry of War Transport as Technical Assistant (Railway Maintenance Division).

We regret to record the death on April 29, at the age of 77, of Sir Christopher Thomas Needham, LL.D., a Director of the London & North Eastern Railway Company since 1928, and of the Manchester Ship Canal Company. He was a member of the following committees of the L.N.E.R. board: Finance, Salaries, Works, Southern Area Local Board, and the Mersey Docks & Harbour Board (Elector).

Sir William Stanier, Consultant to, and lately Chief Mechanical Engineer of, the L.M.S.R., who is a Scientific Adviser to H.M. Government, and Dr. H. R. Ricardo, President of the Institution of Mechanical Engineers, are on the board of Power Jets (Research & Development) Limited. The Government is the sole shareholder in this company, which has acquired the business of Power Jets Limited.

Sir George Nelson, Chairman & Managing Director of the English Electric Co. Ltd., has been elected President of the Federation of British Industries for his second year of office.

We regret to record the death on April 21 of Lt.-Colonel Alexander MacLeod Robertson, C.I.E., M.C., V.D., who retired from the position of Chief Mechanical Engineer, Bengal-Nagpur Railway, at the end of 1942. He joined the company as an Assistant Locomotive Superintendent in the Carriage & Wagon Shops at Khargpur in 1912, and became Works Manager there in 1920. He later officiated on several occasions as Superintendent, Mechanical Workshops, a post in which he was confirmed in 1930. In 1932 he was appointed to officiate as Superintendent, Equipment, and was confirmed in that position in December, 1933. Subsequently he officiated as Chief Mechanical Engineer on a number of occasions, and was confirmed in the post in December, 1940. On medical advice, he requested, and was permitted, leave preparatory to retirement in November, 1942. Colonel Robertson served with the Indian Army during the war of 1914-18, and was awarded the Military Cross; he received the Volunteer Officers' Decoration in 1931.

Mr. J. A. Ellis, who, as recorded in our April 21 issue, has been re-appointed Commissioner of Railways, Western Australia, for his third consecutive five-year term, was trained as an engineer in England, and served in that capacity for nine years with a well-known British firm of railway and public works contractors, on dock and railway works for the former L.N.W.R. He then went to Australia, and served for sixteen years with the Queensland Railway Department before joining the Western Australian service as Engineer for Railway Construction. He afterwards became Assistant Chief Civil Engineer, which position he held at the time of his selection, from more than forty applicants, as Commissioner of Railways in 1934. He was re-appointed for a further term of five years in 1939. In the latter year he visited England and made a study of recent railway developments. Since the outbreak of war Mr. Ellis, in addition to his duties as Commissioner, has represented the Government on various committees and boards. He is a member of the Board of Area Management, Western Australia, Ministry of Munitions, and of the Civil Defence Council. In April, 1942, at the request of the Minister for Transport, his services were made available temporarily to the Commonwealth Government to make a special investigation with a view to improving the capacity of the Australian narrow-gauge railway systems. In September, 1942, after the adoption by the War Cabinet of his recommendation that the Garratt-type locomotive be made standard for 3 ft. 6 in.-gauge systems in Australia, and its approval of a programme for building a large number of these engines, also of flat wagons, he was seconded to the Commonwealth and stationed in Melbourne to organise the execution of the programme (see also the Overseas columns of our March 17 issue). Under that arrangement, Mr. Ellis was appointed Director of Locomotive & Rolling Stock Construction in the Ministry of Munitions, and a member of the Commonwealth Land Transport Board. The work has now reached a stage at which it is unnecessary for Mr. Ellis to devote to it the whole of his time, and he has returned to Western Australia to resume full-time duty as Commissioner. He retains his post as Director of Locomotive & Rolling Stock Construction, and his membership of the Commonwealth Land Transport Board. He is also a member of the War Railways Committee, which meets in Melbourne and decides questions of policy relating to wartime transport over the Australian railways. Some account of railway progress in Western Australia under Mr. Ellis's Commissionership is given on page 459.

Mr. J. A. Ellis

Re-appointed Commissioner of Railways, Western Australia, for his third term

We regret to record the death on April 23, at the age of 84, of Mr. Daniel Campbell, formerly Resident Engineer, Paraguay Central Railway, who retired in 1916.

Captain B. H. Peter, Managing Director of the Westinghouse Brake & Signal Co. Ltd., is a member of the committee appointed by the President of the Board of Trade to report what, if any, changes are desirable in the Patents & Designs Acts and the practice of the Patent Office and courts in relation to matters arising therefrom.

Buenos Aires Memorial Service for Sir Follett Holt

A memorial service for Sir Follett Holt was held in Buenos Aires on March 30. It was attended by many members of the British Diplomatic Service, railway officers and others, including:—

Sir Guillermo Leguizamon, Chairman, and Major O. Loewenthal (also General Manager, B.A.G.S.R. and B.A.W.R.), Mr. J. Calder Angel and Dr. A. Sanchez Elía, members, and Mr. G. J. White, lately a member, of the local committees of the Buenos Ayres Great Southern Railway Co. Ltd. and Buenos Ayres Western Railway Limited; Dr. L. P. O'Farrell, Chairman (Argentina), British-Argentine Railway Committee; Señor A. Iturbe, Chairman of the local committee, and Major R. K. Hubbard, Acting General Manager, Central Argentine Railway Limited; Dr. D. Taboada, a local representative of the Buenos Ayres & Pacific Railway Co. Ltd.; Mr. T. C. S. Haslam, Assistant to General Manager, B.A.P.R.

We regret to record the death, in the fire which occurred at Bombay Docks on April 14, of Lt.-Colonel John Reginald Sadler, C.B.E., Royal Engineers, General Manager & Deputy-Chairman of the Bombay Port Trust. He had at first been reported missing. Colonel Sadler was a well-known member of the L.N.E.R. staff at York. He had wide experience in rail-

way and dock work in the North Eastern Area of that railway, and had held posts as Mineral Traffic Controller, Hull; Assistant District Superintendent, York; Assistant to the Superintendent, York;

The late Lt.-Colonel J. R. Sadler

General Manager & Deputy-Chairman, Bombay Port Trust, 1942-44

and District Passenger Manager, York. At the outbreak of the present war, as a member of the Supplementary Reserve, he was called to the Colours as Officer Commanding No. 1 Docks Group, R.E. In turn he served with the Expeditionary Force in France in 1939-40, in the Middle East and in India. In August, 1940, he was made C.B.E. (Military Division) " for distinguished services in the field " (in France). After service in the Transportation Directorate in India, he was appointed, at the end of 1942, General Manager & Deputy-Chairman of the Bombay Port Trust. During the last war Colonel Sadler served with the 17th Northumberland Fusiliers (N.E.R. Battalion), and was mentioned in dispatches for services in France. A memorial service was held at St. Michael's Church, Spurriergate, York, on May 3.

A North Eastern Railway friend of long standing writes:—

The bright spring days, when York looks its best, with crowds of daffodils dancing in the breeze beneath the City walls, have been saddened by the news of the death of Colonel J. R. Sadler in the fire at Bombay Docks on April 14. By arrangement with the Army authorities Colonel Sadler was seconded at the end of 1942 from the Transportation Directorate in India to be General Manager & Deputy-Chairman of the Bombay Port Trust. His temperament fitted him for taking control of one of the main gateways to India during the present emergency, for he possessed resource in most situations and was a fine leader of men. Applying himself enthusiastically to the task of organising the dock business, he soon gained the respect and support of all who worked with him. He never spared himself and was last seen supervising the efforts to quell the devastating conflagration.

The record of J. R. S. is one more proof that railway service offers a career open to merit. From Archbishop Holgate's Grammar School he came to the Chief Goods Manager's office of the N.E.R. three or four years before the last war. He was then a sturdy, good-natured lad with a pleasant Yorkshire accent and a great fund of energy freely spent on office duties, athletic sports and the Boy Scout Movement. On the call to arms in 1914 he enlisted in the 17th Battalion, Northumberland Fusiliers, raised by the N.E.R. Promoted by rapid stages to the rank of Captain, at the end of the war Sadler helped Major H. S. Cole to disband the battalion, carrying its colours with becoming dignity when they were placed in St. Nicholas Cathedral, Newcastle-on-Tyne.

On his return to the railway service Sadler won a traffic apprenticeship, and, after a strenuous course of training, filled in succession quite a number of responsible positions until he reached the status of District Passenger Manager, York. In the meantime, being keenly interested in port operating, he joined the Supplementary Reserve of Officers, R.E. At the start of the second world war he was the Officer Commanding No. 1 Docks Group, which went with the Expeditionary Force to France. The Docks Group added to its reputation there and Sadler was awarded the C.B.E. for distinguished services in the field. Next came transfers to the Middle East and then on to India, where a close has come all too soon to a vigorous, useful, and happy life.

Mr. C. H. Adey, Goods Agent, Bristol, Great Western Railway, who, as recorded in our March 31 issue, has been appointed District Goods Manager, Worcester, entered the company's service in the Goods Department at Bristol in 1904. He gained general experience during succeeding years in all aspects of goods station working at the various Bristol depots, and in 1930 he was made Shed Superintendent, Temple Meads, Bristol. In 1933 he was appointed to serve on a commission inquiring into various phases of the work at Paddington Goods, and a year later acted as Goods Agent at Slough for a few months before being appointed Shed Superintendent, Paddington Goods. In 1937 he became Chief Clerk, Paddington Goods, and in January of the next year Assistant Superintendent, Paddington. He was appointed Goods Agent, Bristol, in March, 1940.

Mr. C. H. Adey

Appointed District Goods Manager, Worcester, G.W.R.

We regret to record the death on April 18, at the age of 58, of Mr. H. W. Faircloth, Cartage Assistant, Chief Operating Manager's Department, H.Q., L.M.S.R. He entered the service of the

The late Mr. H. W. Faircloth

Cartage Assistant, Chief Operating Manager's Department, L.M.S.R., 1930-44

former L.N.W.R. at Watford (Goods) in 1901, and four years later became a runner attached to the Outdoor Goods Manager's Office at Euston. In May, 1914, he commenced to give special attention to road motor development for goods cartage, but that work was discontinued when he joined the 7th Royal Fusiliers in September of the same year. He was wounded in France, and was discharged on that account in 1917. Two years later he was appointed Assistant to the Outdoor Goods Manager for Motors & Mechanical Appliances. In 1921 he became Motor & General Assistant to the Chief of Goods Cartage, and in 1929 was made Assistant to the Goods Operating Manager (Transit & Accommodation). He was appointed Cartage Working Assistant to the Chief Goods Manager in 1930. Mr. Faircloth had a varied railway experience and could be considered one of the pioneers associated with railway road transport, inasmuch as he was directly concerned with its principal developments. He was a member of the R.E.C. Road Committee. Among those who attended the cremation service at Golders Green on April 21, in addition to family mourners, were the following present or past members of the staff of the L.M.S.R.:—

Messrs. G. W. Barris, A. L. Castleman, W. O. Davies, E. Falconer (representing Mr. T. W. Royle, Chief Operating Manager, and Mr. S. H. Fisher, Deputy Chief Operating Manager), H. M. Haywood, E. S. Hunt, F. R. Kitton, D. C. McCulloch, C. Phizackerley, J. R. Pike, S. H. Scholes, J. Shearman and S. Vickerman.

At the first meeting of the British Iron & Steel Research Association (see our March 31 issue), Sir James Lithgow was elected President and Dr. Andrew McCance, Chairman.

Mr. R. F. Hurford, Trade Advertising Agent & Acting Publicity Officer, Great Western Railway, has been appointed Assistant Publicity Officer.

TRANSPORT SERVICES AND THE WAR—240

The Summer Timetables

Revised timetables are to be introduced by the main-line railways and London Transport this year on Monday, May 22.

Earlier Station Closing

From Monday, April 24, Cannon Street Station (District Line) is being closed at 7.45 p.m. on weekdays and at 3.30 p.m. on Saturdays. This enables staff to be released for duty at busier points on the London Transport railways. Even before this change, Cannon Street Station was already closed on Sundays. Mansion House and Monument stations are in the near vicinity.

L.M.S.R. Emergency Repair Trains

At strategic points on the L.M.S.R. system, there are stocks of permanent-way and bridge materials to meet any emergency which may arise as a result of enemy action. When necessary, a train is assembled consisting of :—

Locomotive
Steam or diesel crane
Steam or diesel crane runner wagon
Vans containing tools, equipment, stores, rations, etc.
Wagons of materials, as necessary
Brake van

The staff to accompany the emergency train is composed of : 1 chief permanent-way inspector, 1 works inspector, 2 joiners, 2 bricklayers, 5 labourers, 1 crane driver, 1 crane driver deputy, 1 ganger (permanent-way), 1 sub-ganger (permanent-way), and 34 labourers. Included in this staff are men capable of effecting operations by acetylene welding and oxy-acetylene cutting plant.

The equipment taken on the train includes respirators, steel helmets, oilskin coats, oilskin gloves, and rubber boots, to afford protection to men required to work in localities affected by poison gas.

Rations for seven days accompany the men, but sleeping accommodation is not provided, as the staff would be sent home if repairs could not be effected in a reasonable time, and other men would take their place and continue with the job.

L.M.S.R. Train Service Changes

The bringing into operation of the L.M.S.R. summer timetables is postponed from May 1 to 22; meantime certain summer alterations came into force from the beginning of May. In particular, the Inverness section of the 10 a.m. from Glasgow to Aberdeen, with a connection to Callander, runs independently from Buchanan Street at 10.10 a.m. on Mondays and Fridays as well as Saturdays. Special Saturday services to Blackpool on Saturdays only are run from Normanton at 8.15 a.m. (non-stop from Brighouse to Lytham); Halifax at 8.20 a.m. (*via* Todmorden and Burnley); Manchester Victoria at 8.55 a.m. (non-stop to Blackpool North); Nelson at 9.20 a.m. (this train also runs daily, Saturdays excepted, at 9.15 a.m.); and correspondingly in the reverse direction. The 9.45 a.m. from Manchester (London Road) to Euston ceases to call at Stockport, takes the Styal route, and covers the 188½ miles to Euston non-stop in 4 hr. 5 min.; Stockport passengers are conveyed by the 9.52 a.m. from Manchester *via* Stoke. The 5.30 p.m. from Euston to Liverpool is combined with the 5.38 p.m. to Manchester, leaving at the latter hour; the 9.15 and 9.20 p.m. Glasgow sleeping-car expresses from Euston are combined at 9.15 p.m., excepting on Fridays, when the 9.20 continues to run; and the 3.55 p.m. Blackpool relief express from Euston, mainly for the Forces, is cancelled, passengers travelling by the 4 p.m. train. There are corresponding alterations in the southbound direction.

Increased Goods Rates in Croatia

Railway goods rates in Croatia were increased by 50 per cent. from April 1. This increase applies to both home consignments and foreign traffic.

Increase in Bulgarian Transit Rates

Goods rates for railway consignments in transit through Bulgaria to which the special "south-eastern goods rates" applied have been increased by 20 per cent. in respect of the Bulgarian transit section, from March 16.

Long Scandinavian Red Cross Train

According to a Stockholm dispatch, a Red Cross train consisting of 38 carriages, and more than 500 yd. in total length, left Haparanda (Sweden) on April 16 for Germany with wounded German soldiers from Finland. This train is stated to be the largest of its kind ever to cross Sweden.

French Rail Service Reductions

The cancellation of an undisclosed number of trains, from April 24, was announced by the French National Railways administration. It may be recalled that a previous cancellation of a number of passenger trains was announced on the Vichy radio on March 3 (see our March 17 issue, page 285).

It was reported from Spain on April 27 that the German Army had taken over control of all French railways and roads, and had suspended all normal railway timetables for an indefinite period, permitting only such civilian traffic as did not interfere with military requirements.

Great Northern Railway (Ireland) Train Service Changes

Institution of Double Summer Time in Northern Ireland on April 2, in conformity with that of Great Britain, while Single Summer Time remains operative in Eire, has necessitated the customary changes in the timetables of the Great Northern Railway (Ireland), including the running of additional trains, as we recorded briefly in our April 14 issue, page 397. The 9 a.m. from Dublin reaches Belfast at 1.15 instead of 12.10 p.m.; the 2.30 p.m. leaves at 1.15 p.m. and arrives at 5.40 instead of 5.55 p.m.; and the 6.15 p.m. leaves at 5.30 p.m., reaching Belfast at 9.45 instead of 9.30 p.m. Additional expresses are run from Dublin at 1.30 and 6.45 p.m. to Drogheda and Dundalk, with connections to Greenore and Enniskillen. Southbound, the 8.40 a.m. from Belfast leaves at 9.40 a.m., but continues to reach Dublin at 11.50 a.m.; the 12.15 p.m. leaves at 12 noon, and arrives in Dublin at 2.20 p.m. instead of 3.35 p.m.; and the 5.40 p.m. leaves at 5.15 p.m., runs non-stop to Goraghwood, and reaches Dublin at 7.25 instead of 9.5 p.m. Additional expresses are run at 9.45 a.m. from Dundalk to Dublin, and at 6.45 p.m. from Portadown (with connection from Londonderry) to Goraghwood, Dundalk, Drogheda, and Dublin. On Mondays only, passengers by the 9 a.m. train from Dublin for the Greenore and Enniskillen lines are taken by a relief train at 9.12 a.m. Between Belfast and Londonderry there are some important changes in schedules, in order to maintain connection at Portadown with the altered services to and from Dublin. The 11.15 a.m. from Belfast to Derry leaves at 12.15 p.m., and arrives 70 min. later, at 3.45 p.m.; the 4.45 p.m. starts at 4.30 p.m., but still reaches Derry at 8 p.m. From Derry the 10.15 a.m. starts at 9.50 a.m., reaching Belfast at 1 p.m. instead of 1.20 p.m.; and the 3.45 p.m. leaves 5 min. later and arrives 10 min. later, at 7 p.m.

Restaurant cars are still advertised to run on the three principal day services between Belfast and Dublin in each direction, and buffet cars four times daily each way between Belfast and Londonderry.

Meat Transport by Road

The work of the meat road transport fleet has attracted little public attention recently, probably by reason of its smooth and efficient service, of which recent evidence was given in the official statement that not once in 4½ years of war has a retailer failed to receive his weekly supplies. Deliveries from wholesale depots to shops vary little from week to week—London, for example, consumes more or less 5,000 tons every week—but all other movements depend on conditions which result in extremely erratic demands.

In recent months long-distance movements of meat by road have been greater in volume and in mileage than at any time since the war began. Weekly loadings in December were between 60 and 80 per cent. higher than in August, and practically the whole of this increase was in long-distance traffic. In a recent period of four weeks, road transport moved from ports nearly 100,000 tons. To a large extent these figures reflect the increased share of the country's essential traffic now being carried by road, but in addition they indicate the very important part which road transport is playing in feeding the Allied forces in this country.

Deliveries to the United States armed forces in recent months have run into thousands of tons, necessitating long and awkward cross-country journeys, with a certain amount of empty return running. Normally, the work consists of moving frozen meat and poultry in bulk from ships to inland cold stores, and distributing from cold stores to camps, but on special occasions, such as Christmas and Thanksgiving Day, deliveries have been made direct from ship to camp to avoid double handling and possible deterioration. Such movements call for an exceptionally flexible organisation, more especially as they have to be handled almost exclusively in specially-constructed vehicles, which are in short supply. The strength of the Government's chartered fleet of such vehicles has remained fairly constant at about 1,450, and, although the fleet is reinforced by vehicles on casual hire, the total has varied little since the war began.

On the outbreak of war, the road carrying industry set up the Wholesale Meat Transport Association, which is now continuing its work as part of the Government Road Haulage Organisation. The Meat Section of the Organisation has the responsibility for every movement by road of meat and livestock from either the port of entry, or the grading centre, to the butcher. It arranges clearances of insulated railway wagons arriving at railheads, and also meets Army, Navy, and Air Force demands which have a high priority. Road transport maintains regular deliveries to some 760 slaughter houses, nearly 1,000 depots, and 44,000 shops. The central control room is linked by telephone with more than 20 control points in the ports and at intermediate stages. Through these points, the organisation is able to issue operational instructions to drivers engaged on long-distance work, and to switch vehicles rapidly from one part of the country to another. A panel in the control room shows at a glance the approximate position of every vehicle at any hour of the day or night.

Without the willing co-operation of the drivers in expediting the turnround of

vehicles, the current demands would be beyond the capacity of the available transport. An example of this occurred recently when a fast convoy of ships, some of which were carrying meat, overtook a slow convoy, also carrying meat. Ships of both convoys had to be discharged simultaneously, and this necessitated moving by road 31,000 tons, all of which had to be unloaded within 8 days to release ships for other urgent tasks. The position was put to the drivers' union, and, with the union's ready co-operation, the drivers worked day and night to complete the movement within the scheduled time.

In twelve months the turnround time has been reduced by 15 per cent., a saving which has enabled road transport to move several thousand additional tons every week. This intensification of working is also reflected in the mileage figures for the chartered fleet, which reached their peak not long ago when 668,000 miles were run in a fortnight—an increase of about one-third compared with last summer. Delivery the day after loading is the general rule of the long-distance drivers, and they make it a point of professional pride to see that the rule is observed wherever practicable.

Danish Double-Tracking

Double-tracking between Skørping and Støvring, completing the double track between Aalborg and Hobro, is reported to have been finished in August, 1943, at a cost of approximately 2,000,000 crowns.

Women Employees in Manchuria

Manpower in Manchuria has been so depleted by mobilisation that the South Manchuria Railway is to increase the proportion of female employees on its staff from the previous maximum of about 10 per cent. to 53 per cent. Clerical positions are being occupied by women to an increasing extent and, in this connection, training courses have been arranged.

Turkish Railway Developments

A new branch line, 15 km. (9 miles) long, has recently been opened in the brown coal area of western Anatolia to connect an important mine with Tansanli Station, on the Kutaia Bali Kesir main railway.

About the same time, early in January last, a new station called Porsuk was opened on the Eski Shehr-Konia main line (central Anatolia) between Göktchekisik and Sabundchupinar Stations.

Wagon Loadings in India

Wagon loadings on the Indian railways decreased by 6·37 per cent. on the broad-gauge lines, and increased by 3·44 per cent. on the metre-gauge lines in November, 1943, compared with November, 1942. From the beginning of April up to November 30, 1943, wagon loadings were higher by 0·68 per cent. on the broad-gauge, and by 9·91 on the metre-gauge, lines. Earlier reference to wagon loadings in India was made in our issue of March 31 (page 346).

Canadian Wartime Ore Traffic

At a cost of between two and three million dollars, which will be borne by the Canadian Government under the War Measures and War Appropriation Acts, the Canadian National Railways are to proceed as rapidly as possible with building a high-level pocket-type ore-loading dock at Port Arthur, Ontario, and with a 4-mile spur from Atikokan, 150 miles west of Port Arthur on the direct main line from Fort William to Winnipeg, to serve the new Steep Rock iron ore mines. Engineering surveys are being made, and tenders are being called for directly they are complete. The expenditure will also cover the building of 250 bogie ore wagons to move the ore from the mine to the new loading dock on Lake Superior.

Canadian Travel Quota

The Canadian Defence Headquarters announced on February 9 that a quota limitation on travel of wives and dependents of Canadian officers and soldiers serving in Newfoundland was being established because of housing shortage there. The entry of relatives of officers and other ranks to Newfoundland is now controlled, but the quota does not include natives of Newfoundland. Where a serving officer desires that his family in Canada move to Newfoundland to be with him, he now must submit an application to Defence Headquarters, which forwards it to the External Affairs Department for consideration.

Use of Copper in U.S.A. Locomotives

A Conservation Order of the United States War Production Board, forbidding the use of copper in locomotives, has so held up locomotive construction in that country that locomotive orders of vital importance have been delayed. The W.P.B. has thrown the blame on the builders for a "too rigid" interpretation of an Order which has now been modified to read that the use of copper or copper-base alloy is forbidden only in the manufacture of locomotives if the use of a less scarce material is practicable, and even then provided only that the substitution does not cause unreasonable delay in the completion of the locomotive, or weakens the efficiency of the part concerned. No copper or copper-base alloy may be used, however, for non-operating or decorative uses, or for such details as bases, frames, guards, standards, or supports.

Lend-Lease and the American Wagon Position

At a special interstate commerce subcommittee appointed by the United States Senate to investigate the transport situation on the railways, in accordance with Senate Resolution No. 185, evidence was given early in January by Commissioner J. Monroe Johnson, of the Interstate Commerce Commission, concerning the wagon position. He conceded that there had been some congestion at the ports, due to lend-lease shipments, but stated that the number of bogie wagons detained at the ports for over ten days had been reduced from 8,000 in October, 1941, to 2,500 in December, 1943. He claimed that Great Britain had more American wagons tied up in this way than all the other countries combined, with Russia second, and described this as "an abuse by the British and the Russians of our railroad equipment."

Curbing the U.S.A. Ticket Ramp

On January 18 the Office of Defense Transportation, U.S.A., announced that the late Director, Mr. Joseph B. Eastman, had taken further steps to curtail the activities of the "black market" in railway tickets and reservations, to which reference was made on page 318 of the March 24 issue of *The Railway Gazette*. A letter had been addressed to the mayors of more than 100 principal cities in the United States, asking them to take measures to check exorbitant charges for the sale of train tickets, seats, and berths. Investigations by the O.D.T. have shown that the activities of agents engaged in this nefarious practice have involved a certain number of railway employees, and where it has been proved that the latter have accepted bribes for their services in this matter, they have been discharged. It has also been ascertained that charges of $50 have been exacted for reservations on certain popular trains. Each mayor has been asked to confer with the railway and hotel officials in his city, to discover to what extent such practices are prevalent; if such investigation show that "black market" activities are widespread, the city council concerned is asked to make an ordinance prohibiting such dealings. With the letter was enclosed a copy of the recent ordinance enacted by the Council of New York City, which limits booking fees to a maximum of $1 in respect of every ticket transaction, and inflicts severe penalties for infringement.

U.S.A. Motor Vehicle Production

Preliminary reports from the U.S.A. War Production Board show that the 1944 motorlorry production programme ended its first quarter with an actual production of 10,329 vehicles of all sizes for civilian use, of which 7,128 were in the medium class and 3,201 were heavy lorries. Actual production achieved, including military as well as commercial, or civilian vehicles, amounted to 100·4 per cent. of the scheduled goal.

New U.S.A. Pipelines

Since America became a belligerent, two important pipelines have been completed in the U.S.A. to facilitate overland oil transport of crude oil to refining areas, and thence, in the form of finished petroleum products, to the military and civilian consuming areas. These are the 385-mile 16-in. Stanolind Crude-Oil Pipeline (capacity 65,000 barrels daily), from the Slaughter field in west Texas to Drumright, Oklahoma; and the 336-mile 12-in. Magnolia Pipeline (capacity 42,000 barrels daily), from Midland to Corsicana, Texas.

The "Big-Inch" pipeline from Longview, Texas, to the Philadelphia and New York refining areas continues to operate close to or higher than the 300,000-barrel-a-day rated capacity. The recently-completed 243-mile 8-in. Sinclair Products Pipeline from East Chicago, Indiana, to Toledo, Ohio, has already delivered heating distillate to the Ohio terminal, from which tank cars haul the fuel to East Coast points. When shipping is resumed on Lake Erie, the Sinclair Pipeline is expected to operate at capacity, delivering 30,000 barrels a day.

Brisbane City Transport

The annual report of the Brisbane City Council for the year ended June 30, 1943, shows a further marked advance in the business of the transport department both in regard to revenue received and passengers carried. Traffic receipts from tramways and buses together amounted to £1,250,658, of which £1,211,097 came from tramways and £39,561 from buses, compared with £1,019,352 and £33,290 respectively in the previous year. The number of tramway passengers increased from 112,448,234 in 1941-42 to 135,479,648 in 1942-43, and the bus passengers from 3,258,228 to 3,863,704. The tramway route mileage operated was 63, the same as in the previous year, but the number of car miles run increased from 8,744,235 to 9,467,074. Bus miles run in 1942-43 were 511,929 by the 12 diesel buses which continue to give very satisfactory service. Since the close of the financial year additional petrol-driven chassis have been secured. Gross revenue of the department from all sources amounted to £1,288,301, compared with £1,089,088 in 1941-42, and there was a net profit, after meeting working expenses, interest on loans, sinking fund, and depreciation, of £248,034, compared with £146,446 for the previous year.

Vulcan Foundry Limited Annual Meeting

The annual general meeting of the Vulcan Foundry Limited was held on April 21, at Northgate House, Moorgate, London, E.C. In his statement circulated with the report and accounts, the Chairman, Mr. Walter W. Parish, wrote:—

In a letter addressed to shareholders a year ago I emphasised the magnificent response made by all at the Vulcan Foundry to the ever-growing demand in the national effort: the tempo of that demand, if anything, has quickened in the past twelve months, its direction has most certainly widened, and once again I am able to put on record that an output has been achieved in excess of that of any previous financial period.

Shareholders know only too well the disabilities under which the locomotive industry has worked since the outbreak of war, and the board is very conscious of the generous understanding which has been extended to it in recent years, when a dividend, which could be considered only as meagre, has been recommended. In proposing a dividend of 5 per cent. in respect of the past financial year, as compared with 4 per cent. for 1941 and 1942, careful consideration has been given to prospects in the immediate future, and though it is impossible to anticipate outturn and make estimates as in normal times the board feels justified in recommending an increase of 1 per cent. in the dividend for the past year. I trust, however, that as a result of this decision shareholders will not expect a further increase in distribution for the current year, as it is essential that a long view should be taken in considering the future, when post-war demands inevitably will call for an outlay which today cannot be estimated.

During the past year an opportunity occurred to purchase an interest in Robert Stephenson & Hawthorns Limited, which we have effected, jointly with the North British Locomotive Co. Ltd. This step has been taken in exactly the same way as has the interchange of certain directors, with a view to enabling a close working co-operation to be maintained, and to assure, so far as possible, that units of the locomotive industry are in the best position to meet post-war interests in whatever direction H.M. Government may indicate.

At the meeting, the Chairman said: It must have been patent to anyone who has studied the report how hardly your company has been hit as a result of the rough time the locomotive industry had been through in the years before the outbreak of war in 1939, which necessitated the adoption of a substituted figure for the basis of the assessment to excess profits tax. I doubt, however, if the full weight of taxation which the Vulcan Foundry has had to meet is realised by all shareholders, and I therefore give you the following figures:—

For the year to December 31, 1939, the balance on profit and loss account was £104,172. Reserve for taxation was £56,000; for 1940, the corresponding two figures were £147,528 and £118,000; for 1941, £156,178 and £125,000; for 1942, £143,447 and £118,479; and the year covered by the present report, £169,113 and £144,833. Allowing for all adjustments to date, and for general repairs and depreciation, I calculate that of the total profit and loss balance for the five years 1939-43 inclusive, amounting to, say, £720,000, no less than £537,000, or 74 per cent., has had to be allowed for taxation. That is the financial contribution which your company has made to the Exchequer in the past five years, during which time the total amount, less tax, which will have been distributed in preference and ordinary dividends will amount to £107,000.

Three years ago, almost to the day, in dealing with the excess profits tax, I made the following remarks: "As to the future, under legislation as it exists to-day, it would appear problematic, however successful your company may be, whether shareholders can share in this success . . . I very much doubt if legislation dealing with war profits could be expected to avoid what I would call 'illogical comparisons' and consequently hard cases, and this company's case most certainly falls under the heading of 'hard cases,' as conditions in the locomotive industry had been gradually improving from 1938 and your company actually had a substantial order book for locomotive work at the commencement of the war."

I have quoted figures covering the war years to date and a comment I made three years ago on the company's liability to Excess Profits Tax not with any intention of grumbling at what must appear to all Vulcan Foundry shareholders as an exceptionally hard case—that would get us nowhere—but because I feel that there is to-day a hope for the future of the industry such as it has not been possible to look forward to during recent years, a hope of expansion and development which will require, however, all the help which those in authority can give this hard-hit industry if it is going to assume its rightful place in the home and export markets of the world, an industry which is itself fully conscious of its responsibility and is taking such steps as is in its power to anticipate the call which will be made on it in the years immediately ahead.

The report and accounts were unanimously adopted.

Birmingham Railway Carriage & Wagon Co. Ltd. Annual Meeting

The ninetieth ordinary general meeting of the Birmingham Railway Carriage & Wagon Co. Ltd. was held on April 27 at the Grand Hotel, Birmingham. Sir Bernard D. F. Docker, K.B.E., J.P., the Chairman, presided.

In the Chairman's statement circulated with the report and accounts it was stated: There is a small increase, £4,140, in the profit at £78,894. The rate of profit remains low, and once again bears no real relationship to the production achieved. In the balance-sheet on the assets side, land, buildings, plant, etc., show an increase of £9,020; the pension fund investment and carriages and wagons let on hire purchase remain the same; stock and work in progress is £40,602 lower, and sundry debtors at £2,222,547 are £267,263 lower than last year. The reduction in these items reflects the Government policy of increasing the supply to contractors of materials under their control without making any charge, thus reducing the total value of our turnover on which our small margin of profit is based.

In the profit and loss account, after deducting interest on debenture stock, directors' remuneration, interim dividend paid on preference stock in August last, and providing for taxation, there is an available balance of £171,906, out of which the directors propose the payment of a dividend at the rate of 6 per cent. per annum, less income tax, on the preference stock for the half-year ended December 31, 1943—£1,500; the payment of a dividend at the rate of 7½ per cent. per annum, less income tax, on the ordinary stock for the year 1943—£37,162, and to place to war contingencies reserve the sum of £40,000, leaving to carry forward £93,244.

I may say that, without relaxing in any way our wartime effort, we are giving consideration to our post-war problems, and I shall look forward, when the time arrives, to the relaxation of some at least of the many restrictions now placed on us. It is my sincere hope that private enterprise, at a very early stage, will regain the opportunity to function in an efficient and effective manner and to the benefit of all concerned. I take the opportunity of placing on record our appreciation and thanks to the management, staff, and workpeople for the manner in which they have carried out their various duties in the face of ever-increasing difficulties.

As you will have observed, Mr. W. J. Whittle has retired from the position of Secretary to the company and I would like to express our thanks to him for the efficient and loyal manner in which he carried out his duties during his fifty-four years' service with the company, and we hope he may long be spared to enjoy his leisure. Mr. Reid has been appointed to succeed him. In this the fifth year of the war it is only to be expected that the task of carrying on the day-to-day management of our affairs becomes one of greater complexity. It is for this reason that we can congratulate ourselves on the excellence of our team, led as it is with such outstanding ability by our Managing Director, Mr. Moyses.

The Chairman's statement was taken as read, after which Sir Bernard Docker moved that the report and statement of accounts be received and adopted. The resolution was carried unanimously.

The Chairman next moved a resolution authorising the payment of dividends, which Mr. H. J. S. Moyses seconded; the proposition was carried.

Sir Francis L. Joseph, Bt., in moving that Sir Bernard Docker, K.B.E., J.P., be re-elected a director, said they were exceedingly fortunate in having Sir Bernard Docker as one of their directors and also as Chairman.

Mr. John R. Greg seconded the resolution, which was carried.

On the motion of Mr. F. W. Nash, seconded by Mr. H. H. Jones, Messrs. Agar Bates, Neal & Company, and Messrs. Chantrey, Button & Company were reappointed auditors.

MADRAS RAILWAY ANNUITIES.—In accordance with the provisions of the Madras Railway Annuities Act, 1908, it is notified that a total sum of £6,394,164 was on April 4 invested for the purpose of providing a sinking fund in respect of Annuities Class "B."

Institution of Railway Signal Engineers

The annual general meeting of the Institution of Railway Signal Engineers was held at the Institution of Electrical Engineers on April 25, 1944; the retiring President, Mr. James Boot, occupied the chair at the opening of the proceedings. In presenting the annual report and accounts for 1943 he referred to the difficulties the Institution had passed through since the war began. Membership and funds on the whole had been maintained at a satisfactory level and it was the intention to hold meetings more regularly than had been possible for some time. Mr. Boot, who has held the Presidency since 1939, proposed the election of his successor, Mr. R. Falshaw Morkill, who was duly elected to office by the meeting and took the chair; the proposal was seconded by Mr. H. M. Proud, Past President.

Mr. A. Moss, Member of Council, moved a vote of thanks to the retiring President, which was heartily accorded. He spoke of the difficulties and anxieties Mr. Boot had had to contend with for 5 years and the great amount of time he had given to the work, especially in connection with the Development Committee, which had been dealing with the problem of increasing the usefulness of the Institution and improving its constitution. In reply Mr. Boot expressed his gratitude for the support he had received from the Council, officers and members throughout that time. The President proposed the election of Mr. H. H. Dyer as Vice-President: this was seconded by Mr. F. L. Castle and carried with acclamation. Mr. L. F. Baker was re-elected Hon. Secretary and Mr. T. S. Lascelles Hon. Treasurer. Messrs. Gundry Cole & Company were appointed Auditors. The retiring Hon. Auditors, Messrs. F. Edwards and V. S. King, received a hearty vote of thanks.

The new President, in his address, dwelt on the opportunities opened by the change in the war situation and the part signal engineers and their institution would be called on to play in the development of railed transport in better times, for which they must now prepare themselves. Important technical developments were appearing in signalling which would profoundly influence future practice. Standardisation, maintenance practice and education and training for signal work would all call for closer attention in the future, as the demands of rail traffic increased. It was to be hoped that signal engineers from all parts of the Empire would be more closely associated than before and that the Institution would be the principal means of furthering this aim.

The President was accorded a hearty vote of thanks for his address, proposed by Mr. R. S. Griffiths, Past President, who praised Mr. Morkill's forward looking spirit and enthusiasm, an encouragement to them all. The ballot for the Council for 1944 resulted in the election of the following:—Messrs. T. Austin, R. M. Barfoot, L. J. Boucher, E. G. Brentnall, F. L. Castle, R. Dell, F. J. Dutton, J. H. Fraser, T. Guest, F. Horler, P. Lomas, A. Moss, L. Preston, S. W. Spendlove, C. F. D. Venning, and A. W. Woodbridge.

The next meeting of the Institution is to take place on May 24 with a paper on lubricating oils. On June 28 there will be one on coded track circuits. It is understood that members of H.M. Forces who are interested in the work of the Institution are cordially invited to attend its gatherings. Particulars can be obtained from the Hon. Secretary at 80, Caversham Road, Reading.

Staff and Labour Matters

Railway Workshop and Electrical Staff

The Railway Shopmen's National Council at their meeting on April 24 reached agreement on the unions' claim for an increase of 12s. a week in the war advance payable to railway workshop staff. Under the agreement, railway workshop staff are to receive increases as shown below, from April 17, 1944 :—

Adults	
Male staff	5s. a week, making the total war advance 25s. 6d. a week.
Female staff ...	5s. a week, making the total war advance 20s. 4d. a week.
Juniors	
Male and female staff :—	
Under 18 years of age	1s. 3d. a week, making the total war advance 6s. 4d. a week.
18 and under 21 years of age	2s. 6d. a week, making the total war advance 12s. 9d. a week.

The war advance is taken into consideration in calculating overtime, Sunday duty, and night duty payments, but not for superannuation or pensions.

The National Railway Electrical Council at a meeting held on April 26, reached agreement on a similar claim on behalf of staff employed in railway electricity generating stations and sub-stations, and the high tension cables between them. This agreement provides for an increase of 5s. a week in the war advance for men; women and juniors will receive proportionate amounts as at present. These increases take effect as from April 17, 1944.

Road Haulage Wages

The Minister of Labour & National Service has made an order giving effect to the proposals of the Road Haulage Central Wages Board for improvements in the remuneration of road haulage workers (recorded in our issue for April 21) which will become effective as from April 24, 1944.

Industrial Court Award—Railway Shopmen

The Industrial Court has found against a claim by the trade unions parties to the Railway Shopmen's National Council which was referred to the Court on the following terms of reference :—

" To ask the Industrial Court to hear and determine the claim of the employees' side of the Railway Shopmen's National Council that Grade II Fitter F. C. Sandy, employed in the Road Motor Engineer's Department, Bishopsgate, L.N.E.R., should be regraded as Fitter, Grade I."

The Grade II fitter referred to in the terms of reference, is employed in connection with the repair of trailers which are used for the transport of goods, and drawn by mechanical horses.

In support of the claim, it was contended by the union that although the worker concerned had not served an apprenticeship, having regard to the length and nature of his service with the company, he was entitled to be graded as a Grade I fitter in accordance with the provisions as to grading laid down in Note I to Schedule " B " of Industrial Court Award No. 728, which are as follow :—

Grade I.—" Men who have served their apprenticeship to the . . . trade or have served in the various branches of the trade for a period of five years, provided that they have become fully qualified in the skilled branches."

As against the claim, it was submitted by the company that having regard to the nature of his duties, the qualifications of the workman concerned are not such as to warrant his regrading as a Grade I fitter, and that he is properly graded as a Grade II fitter, in accordance with the provisions as to grading of Note I to Schedule " B " of Industrial Court Award No. 728, which are as follow :—

Grade II.—" Men who are not qualified in the skilled branches of the . . . trade but are capable of being employed and are in fact employed without special supervision in a skilled branch of the trade."

Strikes and Lock-outs—Amendment of Defence Regulations

Under Defence Regulation 1A it is an offence to do any act having reasonable cause to believe that it will be likely to prevent or interfere with the carrying on of their work by persons engaged in the performance of essential services. This regulation was not designed to deal with strikes, and, when it was made in 1939, there was no prohibition on strikes or lock-outs. Accordingly the regulation contained a proviso to the following effect: " provided that a person shall not be guilty of an offence against this regulation by reason only of his taking part in or peacefully persuading any other person to take part in a strike."

Under Defence Regulation 58AA the Minister of Labour & National Service has powers to make an Order for prohibiting, subject to the provisions of the Order, a strike or lockout *in connection with any trade dispute*. This regulation and the Order made under that regulation (the Conditions of Employment & National Arbitration Order, 1940) were based on an industrial agreement made in May, 1940, between the Trades Union Congress and the British Employers' Confederation. The object was to substitute compulsory arbitration for the weapon of strike or lockout as a final settlement of trade disputes which were not determined by normal methods of negotiation. The Order made under the regulation provided a procedure whereby trade disputes could be reported to the Minister, and the Order prohibited a strike or lockout in connection with such a dispute unless 21 days had elapsed since the date of the report of the dispute, and the dispute had not been referred by the Minister for settlement. For this purpose the expression " trade dispute " was defined in the same way as in the Industrial Courts Act. Some disputes do not come within the legal definition of " trade dispute," and it may not be an offence to take part in a stoppage of work, even though the stoppage of work may seriously interfere with essential services. The present powers under Defence Regulation 58AA and the Conditions of Employment & National Arbitration Order are adequate for the prosecution of persons who themselves take part in an illegal strike in connection with a trade dispute as defined in the Order. Also, proceedings against " aiders and abettors " can be taken under the Accessories & Abettors Act, 1861, but usually only if the principals are also prosecuted. The new regulation gives powers to deal with persons who are responsible for inciting strikes or lockouts which interfere with essential services, whether or not the cause of the stoppage comes within the legal definition of " trade dispute."

The first part of the new regulation

amends the proviso to Regulation 1A referred to above, so that it will no longer be a defence against a charge under that regulation for a person to plead that he was doing nothing more than peacefully persuading other persons to take part in a strike. It is still necessary to keep that part of the proviso which relates to persons who are themselves on strike. Participation in a strike may constitute an offence under the Conditions of Employment & National Arbitration Order. The second part of the new Defence Regulation makes it an offence for a person " to declare, instigate, or incite any other person to take part in, or otherwise to act in furtherance of, any strike among persons engaged in the performance of essential services, or any lockout of persons so engaged." The regulation contains definitions of strike and lockout, and is not restricted to cases in which the strike is in connection with a trade dispute, or in which the strike is illegal.

There are two provisos to these provisions. Proviso (*a*) is in the same terms as the new proviso to Defence Regulation 1A, and excludes from the scope of the new regulation a person who is doing nothing more than withholding his labour. Proviso (*b*) is necessary for safeguarding the position of the trade union member who speaks his mind at a properly constituted meeting of his union or a group of unions to one of which he belongs. The trade unions undertook to give up the right to strike to meet the requirements of war conditions, and the union executives have loyally observed their voluntary undertaking to refrain from strike action. This proviso will strengthen the unions in dealing with those persons who ignore the policy and instructions of union executives. The proviso will apply only in respect of meetings of union members which are duly summoned by some person authorised to do so, either by the rules of the union, or under the authority of the executive or other governing body of the union. The Draft Regulation contains its own penalty, and the penalty prescribed is a maximum period of 5 years' penal servitude, or a fine not exceeding £500, or both. The principles embodied in the new Defence Regulation have been discussed with the Trades Union Congress and the British Employers' Confederation, and have their full support.

Parliamentary Notes

L.N.E.R. Bill

The London & North Eastern Railway Bill, as amended, passed the report stage in the House of Commons on April 18, and was read the third time, and passed in the House of Commons on April 25. On April 26 the Bill was read the first time in the House of Lords and referred to the Examiners.

L.M.S.R. Bill

The Great Western Railway Company and consumers of water from the Shropshire Canal Company have each deposited a petition in the Private Bills Office in favour of the London Midland & Scottish Railway Bill.

Questions in Parliament

Kings Cross Railway Station

Major Sir Jocelyn Lucas (Portsmouth South—C.) on April 25 asked the Parliamentary Secretary to the Ministry of War Transport, if he was aware that, although Euston and St. Pancras Stations were now clearly marked by day, the L.N.E.R. at Kings Cross still had no clearly visible identification signs; and would he expedite the marking of this station as well as the erection of illuminated signs visible at night.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: I am informed that the signs, daylight and illuminated, have been ordered, but because of shortage of labour and materials, delivery cannot be effected before the middle of May. They will be installed as soon as they are received.

Post-War Transport Planning

Mr. T. W. Burden (Sheffield Park—Lab.) on April 26 asked the Parliamentary Secretary to the Ministry of War Transport, whether, in connection with post-war planning, the Government had given consideration to the question of the most efficient organisation in the national interest of the transport industry in this country; and would he make a statement on the Government's policy in the matter.

Mr. Noel-Baker stated in a written answer: Yes, Sir, all aspects of post-war transport policy are receiving consideration. I am not, however, in a position at present, to add to the statement made by the Minister of War Transport in the House of Lords on October 27 last.

Caledonian Canal

Mr. Malcom MacMillan (Western Isles—Lab.) on April 25 asked the Secretary of State for Scotland, whether he had considered the suggestions sent to him by the Lochaber Labour Party regarding the reconstruction and extension of the Caledonian Canal to accommodate and allow through passage of seagoing shipping from coast to coast; and if he would make a statement.

Mr. T. Johnston (Secretary of State for Scotland): I have brought the resolution in question to the notice of the Minister of War Transport, and of the North of Scotland Hydro-Electric Board, and the Scottish Council on Industry, but I am not in a position to make any statement in regard to it, beyond saying that these and other proposals relating to the Caledonian Canal are at present under consideration.

London Passenger Transport

Commander Sir Archibald Southby (Epsom—C.) on April 25 asked the Secretary of State for War whether he would take steps to convey to the military personnel who had carried out the duties of those transport workers who had gone on strike at a time of great national anxiety, the sincere gratitude of the public, whose requirements had been guaranteed by their courteous service.

Sir James Grigg (Secretary of State for War): While thanking Sir Archibald Southby for the terms of his question, I hope he will agree with me that it would hardly be appropriate to single out these troops from the rest of the Army for special commendation.

Sir A. Southby: Can the Minister say whether it is not the view of the officers and men of the Army that these transport and other workers who have gone out on strike, regardless alike of the nation's necessities and the instructions of their own union officials, have done more to help the enemy than any " fifth columnist " paid by Hitler?

Short Bros. Ltd. Aircraft Production

Sir George Schuster (Walsall—Lib. Nat.) on April 26 asked the Minister of Aircraft Production whether he could give any figures for the output of aircraft from Short Brothers' factories in the 12 months since the change in management compared with the preceding 12 months.

Sir Stafford Cripps (Minister of Aircraft Production): Yes, Sir. The output for the 12 months period to March 31 last, during which the new management was in charge of the Short Brothers group, showed an increase over the preceding 12 months of 69 per cent. overall in aircraft delivered, as well as a considerable volume of spares. The average number of workers employed during the last year was less than that in the preceding period.

Mr. Ellis Smith (Stoke—Lab.): Do these results not prove the correctness and the value of the action taken by the Minister at that time; and will he bear in mind that these results will give great satisfaction to the trade union movement, whose members have demanded that national interests and efficiency should be put before vested interests?

There was no reply.

Forthcoming Meetings

May 6 (*Sat.*).—Permanent Way Institution (Manchester & Liverpool Section), at the Temperance Institute, Southport, 3 p.m. " Formation and drainage," by W. H. Best.

May 11 (*Thurs.*).—Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2, 5.30 p.m. Annual general meeting.

May 16 (*Tues.*).—Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1, 5.30 p.m. " Stresses in concrete sleeper track," by F. Johansen, and " Experiments on concrete sleepers," by F. G. Thomas. Railway Engineering Division meeting.

May 17 (*Wed.*).—Institute of Welding, at the Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1, 6 p.m. " The welding of plastics," by Dr. J. H. Paterson.

May 19 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 5.30 p.m. " Condensing locomotives," by Prof. G. V. Lomonossoff and Capt. G. Lomonossoff. General meeting.

May 20 (*Sat.*).—Permanent Way Institution (London Section), at the Institution of Civil Engineers, Great George Street, Westminster, London, S.W.1, " The manufacture of concrete block sleepers together with an indication as to the type and design of reinforced concrete transverse sleepers in use on the Great Western Railway," by E. C. Cookson.

BRITISH SOUTH AFRICA CO., LTD.—Sir Dougal O. Malcolm, in the course of his address at the 46th ordinary general meeting, said that the exceptionally large dividend for the year ended September 30, 1942, received from the Rhodesia Railways Trust was due to its exceptional receipt of two dividends of £125,000, instead of one, from Rhodesia Railways Limited. In the year under review Rhodesia Railways Trust received only the normal one dividend from Rhodesia Railways Limited, so that for its year ended March 31, 1943, the Trust paid a dividend of 12 per cent., as against a dividend of 16 per cent. for its year ended March 31. 1942.

Notes and News

Cost-of-Living Index. — The official cost-of-living index figure at April 1 last was 100 points above the level of July, 1914, the same as at March 1. In April, 1938, it was 54 points, and in April, 1939, 53 points above July, 1914.

Agreed Charges.—Applications have been made to the Railway Rates Tribunal for the approval of 75 further agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933. Notices of objection must be filed on or before May 12.

Entre Rios Railways Co. Ltd.—The directors have decided to pay on May 2 a further twelve months' arrears of interest (for the year to September 30, 1943) on the 4 per cent. debenture stock, together with 5 per cent. per annum interest on such arrears, making a total payment of £4 3s. 4d. per cent., less tax.

Traffic Inspectors Required.—The services of certain Traffic Inspectors are required by the Nigerian Government for the Railway Department, for the duration of the emergency, or for one tour of 12 to 24 months, whichever be the lesser period, in each case, with possibility of permanency. Details are given in our Official Notices on page 483.

Switchgear & Cowans Limited.—For the year 1943 the profit (including results of subsidiary companies) after making provision for all manufacturing and administrative expenses, depreciation, superannuation, pension fund, war contingencies account, research and development, directors' fees, and for E.P.T. and income tax was £22,653 (£19,150), and £10,431 was brought in, making £33,084. The dividend for the year is at the rate of 20 per cent. per annum, less tax (same), £9,000 (£5,000) is transferred to general reserve, and £12,084 is carried forward.

Institution of Electrical Engineers.—The annual general meeting of the Institution (corporate members and associates only) will be held at 5.30 p.m. on May 11 at the Institution Building, Savoy Place, Victoria Embankment, W.C.2. Afterwards (at about 6.15 p.m.), Mr. R. J. Halsey, B.Sc. (Eng.), will read a paper entitled "Modern Submarine Cable Telephony and the Use of Submerged Repeaters," on which there will be a discussion. At 5 p.m. on the same date (also at the Institution Building) the annual general meeting of the Benevolent Fund of the Institution will take place.

New Canteen at Stratford, L.N.E.R.—On April 28, Mr. George Mills, Divisional General Manager, Southern Area, L.N.E.R., opened at Stratford the sixtieth canteen to be provided by the company. It gives a 24-hr. service for locomotive running, Superintendent's, goods and other staff (provision is already made for C.M.E. staff). The hot-closet system at present in use is to be replaced, as soon as materials are available, by the special equipment for plating meals which was introduced by the L.N.E.R. and the supply of which as standard canteen equipment has now been sanctioned by the Ministry of Works. Some 800 main meals a day are served by the canteen, which also provides light refreshments and packet meals; apparatus is being developed for use in locomotives whereby meals of the last-mentioned type may be kept hot for a considerable period. Among those present at the opening ceremony, in addition to Mr. Mills, were the following officers of the L.N.E.R.:—

Messrs. C.G.G. Dandridge, Passenger Manager, Southern Area; L. P. Parker, Locomotive Running Superintendent (Eastern Section), Southern Area; F. W. Carr, Mechanical Engineer, Stratford; E. H. Ker, District Locomotive Superintendent, Stratford; B. P. Fletcher, District Engineer, Stratford; F. C. Wilson, District Superintendent, Stratford; F. Lockwood, London Cartage Manager; L. J. Moorcock, London District Passenger Manager; George Dow, Press Relations Officer; E. K. Portman Dixon, Canteen Superintendent; and Mr. Crossley (representing Mr. G. B. Barton, Engineer, London).

South African Railways Earnings.—During the period from March 12 to March 31, earnings of the South African Railways amounted to about £2,469,000 compared with £2,495,000 for the corresponding period of 1943.

Scottish Branch of the Institute of Physics.—At the request of physicists employed in industry in Scotland, the board of the Institute of Physics recently authorised the formation of a Scottish Branch of the Institute, which is to be centred in Glasgow. The inaugural meeting of the branch was held on April 22. Further particulars may be obtained from the Acting Honorary Secretary, Dr. R. S. Silver, F.Inst.P., c/o G. & J. Weir Limited, Cathcart, Glasgow, S 4.

Pinchin, Johnson & Co. Ltd.—Preliminary figures for 1943 show a net profit of £553,758, an increase of £100,637 from the previous year. Provision for income tax and E.P.T. requires £370,000 (£270,000). A further sum of £60,000 has been added to reserve for contingencies, bringing its total up to £260,000. The final dividend on the ordinary shares is 7½ per cent., less tax, making for the year 10 per cent. less tax (8½ per cent. less tax), carrying forward £173,343 (£169,202).

Chilean Railway Developments.—Funds have been allocated, according to the Chilean press, to the construction of a railway from Los Vilos to Illapel, along the coast. This would extend the recently-completed Longotoma-Los Vilos cut-off. The approved 1944 budget of the State Railways totalled 1,211,276,200 pesos. Offices of the new railway station in Concepcion, Chile, were opened recently. The major part of the building has four floors and the central tower has eight. There is sufficient space in this building to house all railway offices in the zone, as well as all station services.

Permanent Way Institution.—The following fixtures have been announced by the Permanent Way Institution (London Section): (1) Film lecture on "The Manufacture of Concrete Block Sleepers together with an indication as to the Type and Design of Reinforced Concrete Transverse Sleepers in use on the Great Western Railway," by Mr. E. C. Cookson, B.Sc., A.M.Inst.C.E., with an inspection of pot sleepers afterwards (May 20); (2) visit to the Southern Railway Permanent Way Works, "Redbridge" (June 24); (3) visit to the permanent way works of Taylor Bros. (Sandiacre) Ltd., Sandiacre (August 19); (4) visit to the Post Office Tube Railway (September 23); (5) lecture on "Railways after the War," by Major W. A. Willox, A.M.Inst.C.E. (October 21); (6) lantern lecture on "A Permanent Way Layout from Beginning to End" (Borough Market Junction), by Mr. D. P. Carr, Southern Railway (November 18); (7) lantern lecture on "The Effects of Track Maintenance and Alignment on Structure and Other Clearances," by Mr. H. J. Bussell, G.W.R. (December 16); (8) lantern lecture on "Railway Bridges of the Future," by Mr. H. W. Clark, M.Inst.C.E., L.P.T.B. (January, 1945). The month of July next is being kept free for the diamond jubilee celebrations.

Nidd Valley Light Railway.—The Bradford Corporation Lands Committee has accepted two offers for land comprising part of the abandoned Nidd Valley Light Railway from Pateley Bridge to Lofthouse. One is from a Leeds firm of solicitors (on behalf of clients), to purchase approximately 12¾ acres of land, consisting of the

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices May 2, 1944	Rise/ Fall
G.W.R.				
Cons. Ord.	65½	57⅛	61½	+ 2½
5% Con. Pref. ...	120½	108	120½	+ 3
5% Red. Pref. (1950)	110½	106	107½	
5% Rt. Charge ...	137½	123½	130½	+ 1
5% Cons. Guar. ...	135½	121⅞	127½	—
4% Deb.	118	107½	115	+ ½
4½% Deb.	119	109⅞	114⅝	—
4½% Deb.	124½	116	120½	—
5% Deb.	138	127	131½	—
2½% Deb.	77	72½	75½	+ 1
L.M.S.R.				
Ord.	34⅛	28	32½	+ 2½
4% Pref. (1923) ...	66½	58	60½	+ 1
4% Pref.	80½	73	77½	+ ½
5% Red. Pref. (1955)	105½	102	104½	—
4% Guar.	107	98½	101½	—
4% Deb.	109½	103½	106½	+ 1
5% Red. Deb. (1952)	111½	108	109½	—
L.N.E.R.				
5% Pref. Ord. ...	12⅞	7½	9½	+ ¼
Def. Ord.	5⅜	3½	4½	+ ¼
4% First Pref. ...	66½	57½	60½	+ 1
4% Second Pref. ...	36½	30½	33½	+ 1½
5% Red. Pref. (1955)	99⅜	93	100½	—
4% First Guar. ...	102⅜	94	98½	+ ½
4% Second Guar. ...	93½	85⅜	90½	+ 1
3% Deb.	86⅜	78½	84	+ 1
4% Deb.	109⅞	101⅜	105½	+ 1
5% Red. Deb. (1947)	106½	102	103	—
4½% Sinking Fund Red. Deb.	108	103½	104½	—
SOUTHERN				
Pref. Ord.	80	72½	78	+ 1
Def. Ord.	26⅜	20⅜	25½	+ 1
5% Pref.	119½	106⅜	117½	+ 1½
5% Red. Pref. (1964)	114	108½	113½	—
5% Guar. Pref. ...	136	122	127½	—
5% Red. Guar. Pref. (1957)	117	109½	113½	—
4% Deb.	117½	106	112½	+ 1
5% Deb.	137	126	130½	—
4% Red. Deb. (1962-67)	112	106½	110½	—
4% Red. Deb. (1970-80)	112	107	110½	—
FORTH BRIDGE				
4% Deb.	109	104⅜	105	—
4% Guar.	105	102½	103½	—
L.P.T.B.				
4½% "A"	125½	114	121½	—
5% "A"	133⅞	123	130½	—
3% Guar. (1967-72) ...	100½	97	99	—
5% "B"	124	114	119½	—
"C"	72	53	72	+ 1
MERSEY				
Ord.	34½	27	33½	—
3% Perp. Pref. ...	68	59½	69	—
4% Perp. Deb. ...	104	102½	103	—
3% Perp. Deb. ...	83	78½	79	—
IRELAND				
BELFAST & C.D.				
Ord.	9	6	6½	—
G. NORTHERN				
Ord.	24½	16	21½	+ ½
Pref.	—	—	39½	— ½
Guar.	—	—	62	+ ½
Deb.	—	—	85½	— ¼
G. SOUTHERN				
Ord.	30	9½	45½	+ 2
Pref.	30	11	45½	+ 1
Guar.	64	26½	66	+ 2½
Deb.	88½	51⅜	93½	+ 2½

§ ex-dividend

OFFICIAL NOTICES

Overseas Employment

TRAFFIC INSPECTORS required by the Nigerian Government for the Railway Department for the duration of the emergency or one tour of 12 to 24 months, whichever is the lesser period, with possibility of permanency. Salary £400—£12—£560 a year. Separation allowance for married men is £160 on £400. Outfit allowance £25. Free passages and quarters. Candidates must have had good all-round training on Home Railway both on inside and outside work preferably in both operating and commercial departments and should be able to undertake the inspection, supervision and execution of general railway traffic working.

Applications in writing (no interviews) stating date of birth, full details of qualifications and experience, including present employment; also Identity and National Service or other registration particulars, and quoting Order No. O.S. 117, should be addressed to the Ministry of Labour and National Service, Appointments Department, Sardinia Street, Kingsway, London, W.C.2.

line from Pateley Bridge to Wath. The other is from the West Riding County Council to purchase that part of the railway from Wath to Lofthouse to make a road.

Uruguayan Expenditure on Communications.—Of a programme of expenditure on public works during 1944 to an amount of over 40,000,000 pesos, nearly 30,000,000 pesos is to be spent on communications. Railway building will absorb 4,200,000 pesos, and construction of roads, 20,300,000 pesos; and a sum of 5,303,000 pesos is to be allocated to waterways (including irrigation schemes). Other items include public works and buildings (8,000,000 pesos) and military expenditure (3,500,000 pesos). Part of the amount concerned will be lent by the U.S.A., and the balance will be raised by an internal loan.

Canteen Opened at Waterloo Station.—On April 26 Lord Woolton, Minister of Reconstruction, opened at Waterloo Station the Southern Railway's 47th staff canteen which will cater for about 1,200 of the employees of all departments. The canteen, constructed in what was a disused arch, has a seating capacity for 200, and it is expected that over 10,000 meals and 15,000 hot drinks will be served each week. The most up-to-date kitchen equipment has been installed, and air-conditioning is provided. The canteen is managed by a committee of employees, the Chairman of which is Mr. H. C. Greenfield, M.B.E., Stationmaster at Waterloo. Among those present were :—

Colonel Eric Gore-Browne, Chairman, the Earl of Radnor, Deputy-Chairman, and Sir William Clarke, Director, Southern Railway Company; Sir Alan Anderson, Controller of Railways, Ministry of War Transport, and Chairman of the Railway Executive Committee; the following officers of the Southern Railway: Messrs. E. J. Missenden, General Manager, J. Elliot, Deputy General Manager, R. M. T. Richards, Traffic Manager, O. V. Bulleid, Chief Mechanical Engineer, V. A. M. Robertson (Chief Civil Engineer), O. Cromwell, Chief Officer for Labour & Establishment, and H. C. Greenfield, Stationmaster, Waterloo; Mr. Parmenter, Deputy Food Officer, and Mr. Stoneham, Catering Assistant, Food Office, Borough of Lambeth; and representatives of the N.U.R. and A.S.E.L. & F.

Liverpool Corporation Light Railways.—The Minister of War Transport has made the Liverpool Corporation (Extension of Time) Order, 1944 (S.R. & O. 1944 No. 411) extending by three years the time limited by Section 8 of the Liverpool Corporation Light Railways Order, 1936, as extended by the Liverpool Corporation (Extension of Time) Order, 1941, for the completion of Railways Nos. 10 and 11 authorised by Section 4 of the Order of 1936.

Central Argentine Railway Limited.—The Argentine Government has recently granted to the railways a special rate of 16·15 pesos to the £ for their remittances for financial services, the previous special rate of 16 pesos to the £ having lapsed on December 31 last. Remittances of accumulations have now made possible the declaration of a payment in respect of the interest on the 4 per cent. debenture stock outstanding up to December 31, 1943. It is expected that this payment will be made on or about June 8 next.

Beira Railway Co. Ltd.—The Chairman's statement circulated with the report shows that the working of the line during the year ended September 30, 1943, resulted in a gross revenue of £840,197, a decrease of £65,562 which was accounted for principally by continued decline in import traffic. Expenditure, at £474,908, was £20,572 higher, mainly due to increased cost of wages, and net revenue, at £365,289, therefore declined by £86,134. As a result of discussions with Rhodesia Railways Limited that company had agreed to a temporary reintroduction of an allowance in excess of the Beira Company's strict mileage division on certain special traffics as from October 1, 1943. The effect of this should be an estimated increased net revenue to the Beira Company of some £50,000 during the current financial year. Net earnings for the five months—October, 1943, to February, 1944—amounted to £156,817, as compared with £142,650 in the previous year.

Churchill Machine Tool Co. Ltd.—For 1943 the net profit after providing for depreciation, income tax, E.P.T., war damage contribution, reserves, and other charges was £57,649 (£58,066), and the amount brought in was £40,403, making £98,052. The final ordinary dividend is 15 per cent., making 30 per cent., less tax, for the year, the same as for the four previous years. A sum of £20,000 is again transferred to war contingencies reserve, leaving £34,920 to be carried forward.

Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways :—

General Electric Co. Ltd.: Instruments and mechanism for measuring.

Equipment & Engineering Co. Ltd.: Instruments and mechanism for measuring.

Stream-Line Filters Limited: Filter packs.

Midland Electric Manufacturing Co. Ltd.: Carbon brushes.

Whipp & Bourne Limited: Circuit breaker.

Mulcott Belting Co. Ltd.: Brammer belting.

Metropolitan-Vickers Electrical Export Co. Ltd.: Machine plant and spares.

Alton Battery Co. Ltd.: Batteries.

Chas. Page & Co. Ltd.: Caustic potash.

Newport & South Wales Tube Co. Ltd.: Tubular poles.

Jenson & Nicholson Limited: Varnish.

Docker Bros.: Varnish.

Hoffmann Manufacturing Co. Ltd.: Ball bearings.

Buck & Hickman Limited: Brazing lamps.

Chloride Electrical Storage Co. Ltd.: Batteries.

Holden & Brooke Limited: Spares for steam railcars.

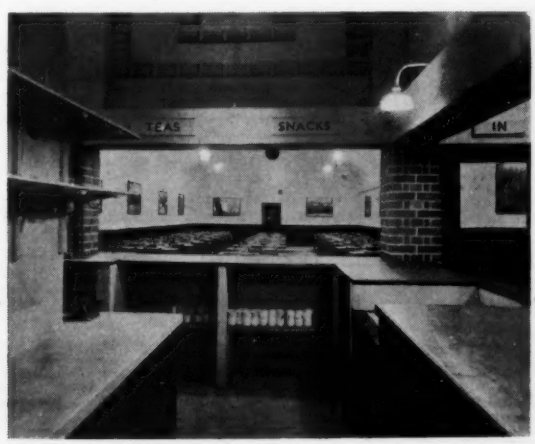
Richard Klinger Limited: Spares for steam railcars.

Davies & Metcalfe Limited: Spares for team railcars.

Marconi's Wireless Telegraph Co. Ltd.: Resistance elements.

Pickford Tool Co. Ltd.: Stay taps.

Krvn & Lahy (1928) Limited: Cast steel wheel centres.



Left: Mr. E. J. Missenden. Lord Woolton. Colonel Eric Gore-Browne, and Sir Alan Anderson at the opening of the staff canteen at Waterloo on April 26. Right: An interior view of the canteen. (See accompanying paragraph)

Railway Stock Market

Stock Markets have been in cheerful mood, and there has been a general upward swing in values, with sentiment reflecting the good impression created by the promised post-war tax concessions to industry in respect of new plant and machinery, research expenditure and obsolescence. After their long period of neglect home railway stocks came in for strong demand, accompanied by a revival of market talk of a possibility of revision of the fixed rental agreement; although this continues to be considered unlikely in responsible quarters, particularly as it would be a much more complicated matter than is often realised. Moreover, it should not be overlooked that, taking the long view, general revision of the agreement might not work out to the advantage of stockholders as a whole, although it is not denied that it bears hardly on holders of L.N.E.R. preferred and deferred stocks which are precluded from any dividends.

The existing agreement is scheduled to run until at least one year after the war, and during the difficult period of the change-over to peacetime working, when industrial companies will have many problems to solve, railway stockholders will be assured of dividends at around current rates. An important influence stimulating the upswing in railway stocks has been realisation that the railways should stand to benefit from the promised tax concession in respect of plant and obsolescence, etc. This concession has created the belief that the intention is to give industry every reasonable assistance to meet the change-over to peacetime working, and that in the circumstances, there is every reason to expect the railways also to receive fair treatment. The view has been expressed in these notes that although the market had been taking an unjustifiably gloomy view of the railway position and outlook, when markets showed sustained activity, railway stocks would be likely to participate, bearing in mind the wide margin between yields on home railway junior stocks and the small return on many industrial shares. The rise in values has embraced preference, guaranteed stocks and prior charges generally, as well as junior stocks, it being realised that yields on senior railway stocks compare favourably with those on securities in other sections of the Stock Exchange carrying similar investment merits. As has been mentioned here, the valuation of junior stocks of the main-line railways on a basis showing yields ranging from 8 per cent. to 8½ per cent. suggested fears that after the end of the wartime rental, the railways would not be able to pay dividends at the rates ruling under the control agreement. Now, however, this pessimistic view appears to be losing ground, to the belief that, if the railways receive fair treatment in connection with post-war transport organisation and other adjustments, dividends should at least be maintained after the end of control. If this belief grows there will be scope for considerable further improvement in junior railway stocks. Markets naturally must be expected to fluctuate in accordance with the war news, which will doubtless have the dominating influence on sentiment during the next few months.

Compared with a week ago, Great Western ordinary has risen from 59 to 61½, the 5 per cent. preference from 117½ to 119, the guaranteed stock from 127 to 128, and the 4 per cent. debentures from 114 to 115. L.M.S.R. ordinary, 30⅛ a week ago, has since moved up to 32¼, the 1923 preference from 59½ to 60¾, and the senior preference from 77 to 77½. L.N.E.R. deferred and preferred were fractionally better, the second preference 33⅞, compared with 32⅛ a week ago, and the first preference rallied from 59½ to 60¾. Among Southern stocks, the 5 per cent. preference has risen from 116 to 118, the preferred from 76¾ to 78, and the deferred was 25¼, compared with 24⅛ a week ago. London Transport "C" has been maintained at 72.

The Central Argentine payment on account of debenture interest and the fixing of the exchange rate of pesos tended to have a favourable effect on Argentine railway securities. Central Argentine 4 per cent. debentures were 51xd. Elsewhere United of Havana debentures moved up from 28¾ to 31. Canadian Pacifics were better at 15⅛.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1943	Prices: Lowest 1943	Prices: May 2, 1944	Prices: Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chile) & Bolivia	834	23.4.44	27,230	+ 5,730	17	475,450	446,490	+ 28 960	Ord. Stk.	15¾	10	11	Nil
	Argentine North Eastern ...	753	22.4.44	14,706	+ 2,340	43	614,934	525,432	+ 89,502	..	7⅛	5	5	Nil
	Bolivar	174	Mar., 1944	6,006	— 514	13	15,953	16,331	— 378	6 p.c. Deb. Bonds	22½	18	17½	Nil
	Brazil	—	—	—	—	—	—	—	—		23¼	19	17	Nil
	Buenos Ayres & Pacific ...	2,807	22.4.44	129,300	+ 15,900	43	4,548,060	4,292,040	+ 256,020	Ord. Stk.	8½	5¼	6	Nil
	Buenos Ayres Great Southern	5,080	22.4.44	170,760	+ 19,740	43	7,673,760	6,953,580	+ 720,180	Ord. Stk.	17½	9¼	12¼	Nil
	Buenos Ayres Western ...	1,930	22.4.44	61,620	+ 4,980	43	2,403,660	2,317,080	+ 86,580	..	16	9⅞	10¾	Nil
	Central Argentine	3,700	22.4.44	175,185	+ 47,403	43	6,461,922	5,700,039	+ 761,883	..	10¾	6½	8½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4⅞	3	4	Nil
	Cent. Uruguay of M. Video	972	15.4.44	28,252	— 12,770	42	1,404,509	1,192,601	+ 211,908	Ord. Stk.	7⅛	4½	4½	Nil
	Costa Rica	262	Mar., 1944	24.101	+ 5,596	38	199,765	132,957	+ 66,808	Stk.	16	12½	15	Nil
	Dorada	70	Mar., 1944	25,589	+ 6,059	13	73,281	59,520	+ 13,761	1 Mt. Db.	96	92	93½	6⅓
	Entre Rios	808	22.4.44	17,730	+ 1,926	43	838,704	758,130	+ 80.574	Ord. Stk.	9	5¼	6	Nil
	Great Western of Brazil ...	1,030	22.4.44	21,000	+ 10,000	17	375,000	266,800	+ 108,200	Ord. Sh.	59/9	24/4½	28/9	Nil
	International of Cl. Amer. ...	794	Feb., 1944	$819,809	+ $163,288	8	$1,534,088	$1,312,320	+ 221,768	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	2¾	1⅛	⅞	Nil
	La Guaira & Caracas... ...	22½	Mar., 1944	7,704	— 1,656	13	21,956	27,435	— 5,479	5 p.c. Deb.	90	80	83½	Nil
	Leopoldina	1,918	22.4.44	45,124	+ 15,226	17	734,236	526,772	+ 207,464	Ord. Stk.	7¾	4	5	Nil
	Mexican	483	21.4.44	ps. 413,100	— ps. 30.000	17	ps. 6,542,700	ps. 5,587,900	+ ps. 954,800	Ord. Stk.	1⅞	¾	¾	Nil
	Midland Uruguay	319	Feb., 1944	16,340	— 1,701	34	186,487	116,700	+ 19,787	—	—	—	—	—
	Nitrate	382	15.4.44	8,072	+ 1,392	14	61,552	42,058	+ 19,494	Ord. Sh.	83/9	71/3	70/-	Nil
	Paraguay Central	274	21.4.44	$58,980	+ $1.430	17	$2,173,199	$1,711,070	+ $462,129	Pr. Li. Stk.	75	51½	70	8
	Peruvian Corporation ...	1,059	Mar., 1944	117,202	+ 26,463	39	964,686	757,581	+ 207,105	Pref.	17⅛	10½	11	Nil
	Salvador	100	Feb., 1944	c188,000	+ c 25,000	34	c 984,000	c 772,000	+ c 212,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	71	57	49	4⅛
	Taltal	160	Mar., 1944	4,745	+ 310	39	50,015	41,346	+ 8,669	Ord. Sh.	37/6	20/-	17/6	Nil
	United of Havana	1,301	22.4.44	85,036	+ 21,969	43	2,411,219	2,176,026	+ 235,193	Ord. Stk.,	8 5/12	3½	3½	Nil
	Uruguay Northern	73	Feb., 1944	1,425	— 31	31	11,503	11,064	+ 439	—	—	—	—	—
Canada	Canadian Pacific	17,034	21.4.44	1,199,200	+ 100,600	17	18.564,800	15,874,800	+ 2,690,000	Ord. Stk.	18	13⅞	15	Nil
India†	Barsi Light	202	Feb., 1944	25,575	+ 3,285	47	237,600	197,852	+ 39,998	—	—	—	—	—
	Bengal-Nagpur	3,267	Feb., 1944	974,475	+ 23,250	7	11,369,400	10,049,850	+ 1,319,550	Ord. Stk.	104½	101½	107½	3¾
	Madras & Southern Mahratta	2,939	Mar., 1944	320,475	+ 25,632	48	10,089,741	8,547,891	+ 1,541,850	—	—	—	—	—
	South Indian	2,349	20.12.43	199,410	+ 24,449	37	5,321,558	4,562,445	+ 750,113	—	—	—	—	—
Various	Egyptian Delta	—	20.2.44	19,780	+ 5,522	48	543,990	418,153	+ 125,837	Prf. Sh.	6⅛	2¾	5	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	45	32	40	8¾
	Midland of W. Australia ...	277	Feb., 1944	21,583	— 6.758	33	245,504	252,708	— 7,204	Inc. Deb.	101	93	100½	6
	Nigerian	1,900	29.1.44	99,395	+ 18,357	30	3,418,855	2,944,340	+ 474,515	—	—	—	—	—
	South Africa	13,291	5.2.44	906,790	+ 63,914	46	37,522,295	34,935,498	+ 2,586,797	—	—	—	—	—
	Victoria	4,774	Nov, 1943	1,335,935	— 64,116	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 16⅔ pesos to the £
Receipts are calculated @ 1s. 6d. to the rupee § ex dividend